The Farm

QUARTERLY, AUTUMN 1951. FIFTY CENTS

Does the Show Ring Help the Cattleman?

The Mayan Farmer

. . . in Guatemala his ancestors grew the first corn

NEBRASKA
AGRICULTURAL LIBRARY
SEP 8 1954

SEE WHY more farmers prefer Super-Sure Grips than all other makes of tractor tires put together!*

You can't work your fields with claims. You need the strongest pull, the longest wear, that money can buy. That's why Goodyear's work-proved Super-Sure-Grip is the farmer's favorite – and here are some reasons why:

EXCLUSIVE, RULER-STRAIGHT LUGS, *coming closer together at shoulders, take a "wedge-in" bite that firms loose soil – gives "the greatest pull on earth"!*

O-P-E-N C-E-N-T-E-R *helps ruler-straight lugs bite deeper, pull better!*

LONG, EVEN WEAR – *for ruler-straight lugs work evenly against soil, roll smoothly on road – and so wear slowly and evenly!*

RE-LUGGING SAVINGS – *for its vastly stronger body keeps Super-Sure-Grip fit to re-lug or retread – and re-use!*

And don't think that other tires *resembling* Super-Sure-Grips can work and wear like these. Let your helpful Goodyear dealer show you by *actual comparison* how no other can equal the many savings of this great Goodyear. Goodyear, Farm Tire Dept., Akron 16, Ohio.

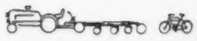
*From recent independent survey.

FIRST in Traction · FIRST in Long Wear *FIRST Choice on the Farm!*

GOODYEAR

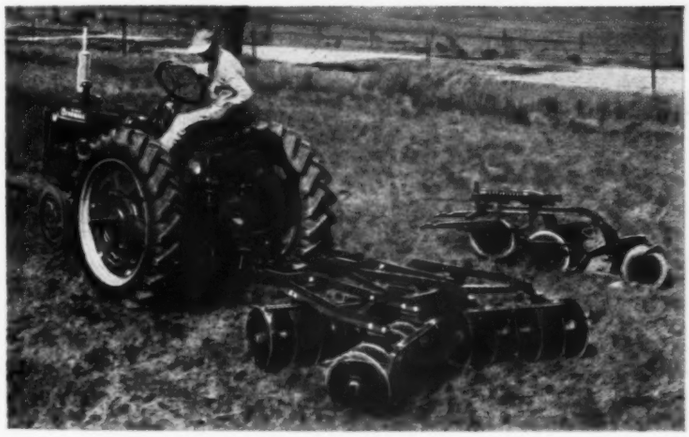
Super-Sure-Grip Tractor Tires

THERE'S A SPECIALLY DESIGNED GOODYEAR TIRE FOR EACH VEHICLE ON THE FARM



Super-Sure-Grip—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

Fast-Hitch and *GO* with a McCormick® FARMALL® SUPER C ...built for the long pull



Back . . . CLICK! . . . and GO! Switch in *seconds* from plow to disk harrow or any one of a full line of Fast-Hitch implements. You can also get a low-cost mounted McCormick corn picker or snapper, or a cotton picker or stripper.

Prove you get more 2-plow performance for your tractor dollar invested in a Farmall Super C! Call your IH Dealer today! Test Super C pull-power with a free trial in your own fields. Let a new Farmall Super C pay for itself in use on the liberal Income Purchase Plan.

Take a good look at your present tractor. You've put up with its balky, fading power through easy-pulling summer jobs. But will it take the grind of plowing and other heavy fall work ahead?

If its "down-time" cuts into profitable field-time, then it's time to get behind the wheel of a new Farmall Super C for power you can count on! On heavy pulls, you'll feel the big-diameter rear tires grip the ground to pull the load where other tractors spin and stall. You save fuel, tires wear longer. Best of all, your neighbors will testify that Farmall power *stays up*—gives you the *dependability* you need to get in the field and keep going. That's why a Super C is the lowest-cost 2-plow, 2-row power you can buy for the long pull!

INTERNATIONAL HARVESTER

International Harvester products pay for themselves in use—McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Crawler Tractors and Power Units . . . Refrigerators and Freezers—General Office, Chicago 1, Ill.

Send for Free Catalog

International Harvester Company,
Post Office Box 7333, Dept. FQ-9, Chicago 80, Illinois

Please send me your catalog showing why a Farmall Super C with Fast-Hitch cuts power costs over the long pull.

Name_____

Address_____

Post Office_____ State_____

I farm_____ acres. ☐ Student.

My IH Dealer is_____

IN 1953

HUNDREDS of TRUCKS Rolled MILLIONS of Miles!

Each year hundreds of Swamp Holly Orange trucks roll millions of miles to keep your Surge from missing even one milking!

You Can't Get Gypped on Surge Service!

When your Surge Service Dealer lands at your farm to make his annual Surge Service call, he is there to help you milk your cows better and faster.

You can tell him to go ahead and do whatever he thinks is necessary with absolute assurance that you *can't* get hurt . . . because . . . the cost of keeping Money-Making Milking in your barn must be satisfactory to you. He sold you a good milking machine in the first place, and he is there to make it keep right on being a good milking machine.

When he has done his work, pay him what he says you owe. If you are not entirely satisfied that his price is fair, all you have to do is send your bill to Chicago and we'll send you our check for every cent he charged you for labor. We have entire confidence in our Surge Service Dealer . . . so can you.

Surge

BABSON BROS. CO.

2843 West Nineteenth Street • Chicago 23, Illinois

Copyright 1954 Babson Bros. Co.

ATLANTA • HOUSTON • KANSAS CITY • MINNEAPOLIS • SACRAMENTO • SEATTLE • SYRACUSE • TORONTO

Farm Quarterly, Vol. Nine, No. Three. Editorial, Circulation and Executive Offices, 22 East 12th Street, Cincinnati, Ohio. Published quarterly by the Automobile Digest Publishing Corp. Subscription price 50c a copy; $2.00 for one year; $3.50 for two years; $5.00 for three years. Add $1.00 per year extra for rates outside the United States and Canada. Entered as second-class matter at the Post Office, Cincinnati, Ohio, under the Act of March 3, 1879. (Title Reg. U.S. Pat. Off.)

the Cream of your Crop!

THE manufacture of Seagram Dried Grains represents a perfect agricultural cycle. Here is a product we buy in the form of whole corn and *return* to the farmer as a highly nutritious, fermentation feed supplement.

The reason Seagram Dried Grains make the ideal dairy supplement is because they are rich in proteins, minerals, vitamins, and other lactation factors so essential to quality milk production.

Tests have proved that when Seagram Dried Grains are used to fortify dairy rations, results are more milk, richer milk and higher profits to the dairyman.

Thus Seagram Dried Grains — like the cream in milk — is the cream of your corn crop.

"Carload Lot Inquiries are invited."

Seagram
SERVICE TO AGRICULTURE

JOSEPH E. SEAGRAM & SONS, Inc.
Louisville 1, Kentucky
GRAIN PRODUCTS DIVISION

Cargo-laden wheels vital to our way of life

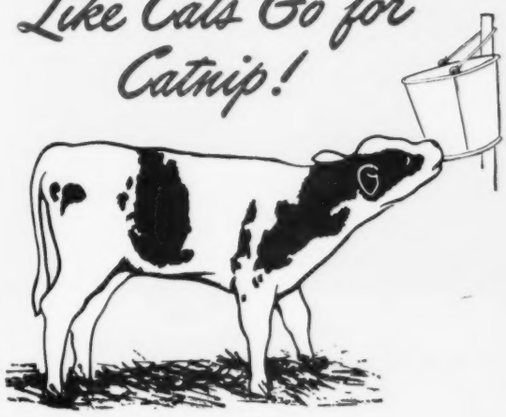
Laden with essentials to our way of life, these are the busy wheels of motor transport that bring us nearly everything we wear, eat and use every day. Wheels of every kind used by this great fleet are designed and produced by Kelsey-Hayes. The people who build these vital vehicles set exacting standards for the wheels which keep them rolling with rugged day-in, day-out dependability. They know when they specify Kelsey-Hayes, as they have for over 45 years, they're getting wheels of the highest standards in performance—whether it's wheels for trucks, trailers, buses, farm implements, tractors or passenger cars. Kelsey-Hayes Wheel Company, Detroit 32, Michigan.

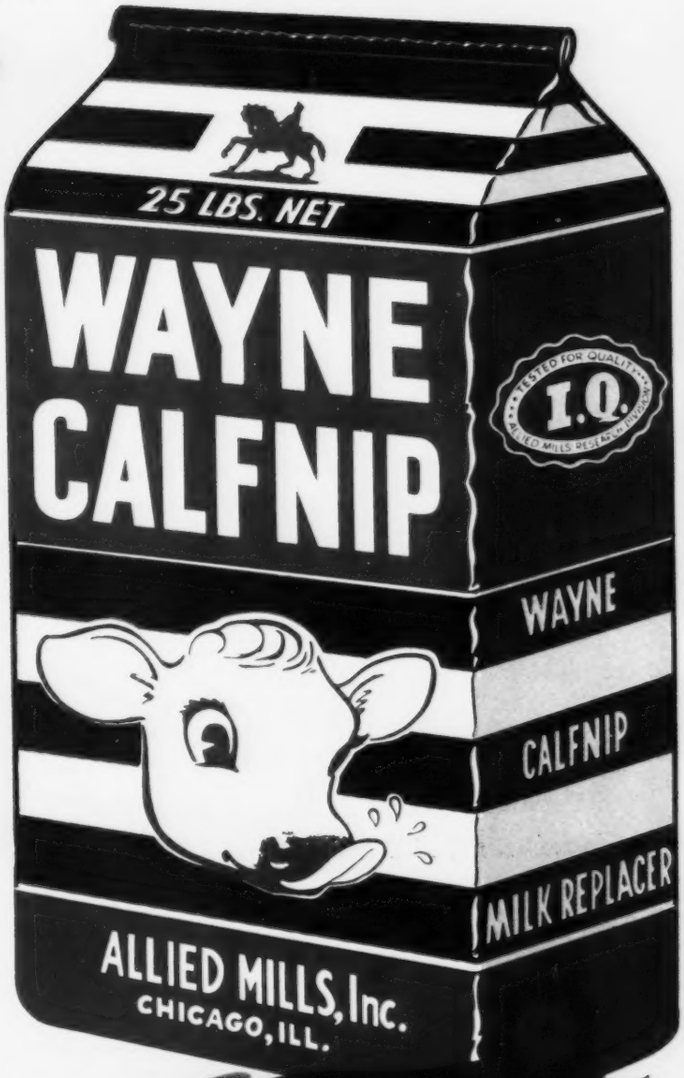
KELSEY HAYES

World's Largest Producer of Automotive and Farm Implement Wheels

Wheels, Brakes, Hubs, Brake Drums, Special Parts for all Industry • 9 Plants—Detroit and Jackson, Mich. . . . Los Angeles McKeesport, Pa. . . . Windsor, Ontario, Canada . . . Davenport, Ia. (French & Hecht Farm Implement and Wheel Division)

Calves Go for NEW Milk Replacer





Helps you

- Save milk
- Reduce digestive upsets
- Cut labor costs
- Raise better calves at lower cost

NEWEST in name
LONGEST in use

Proved by 20 Million Calves!

FREE! LATEST CALF FEEDING FACTS

See for yourself!—on your own calves—how this remarkable new milk-replacer *looks like milk, tastes like milk,* yet *out-performs* milk! Packed in convenient 25 lb. bags, with plastic inner-liner and handy measuring cup. Simple feeding guide printed right on the bag. See your Wayne Dealer.

ALLIED MILLS, INC. • FORT WAYNE 1, • INDIANA DEPT. FQ12

Send me bulletin on new developments in CALF FEEDING, at no cost or obligation.

Name_____

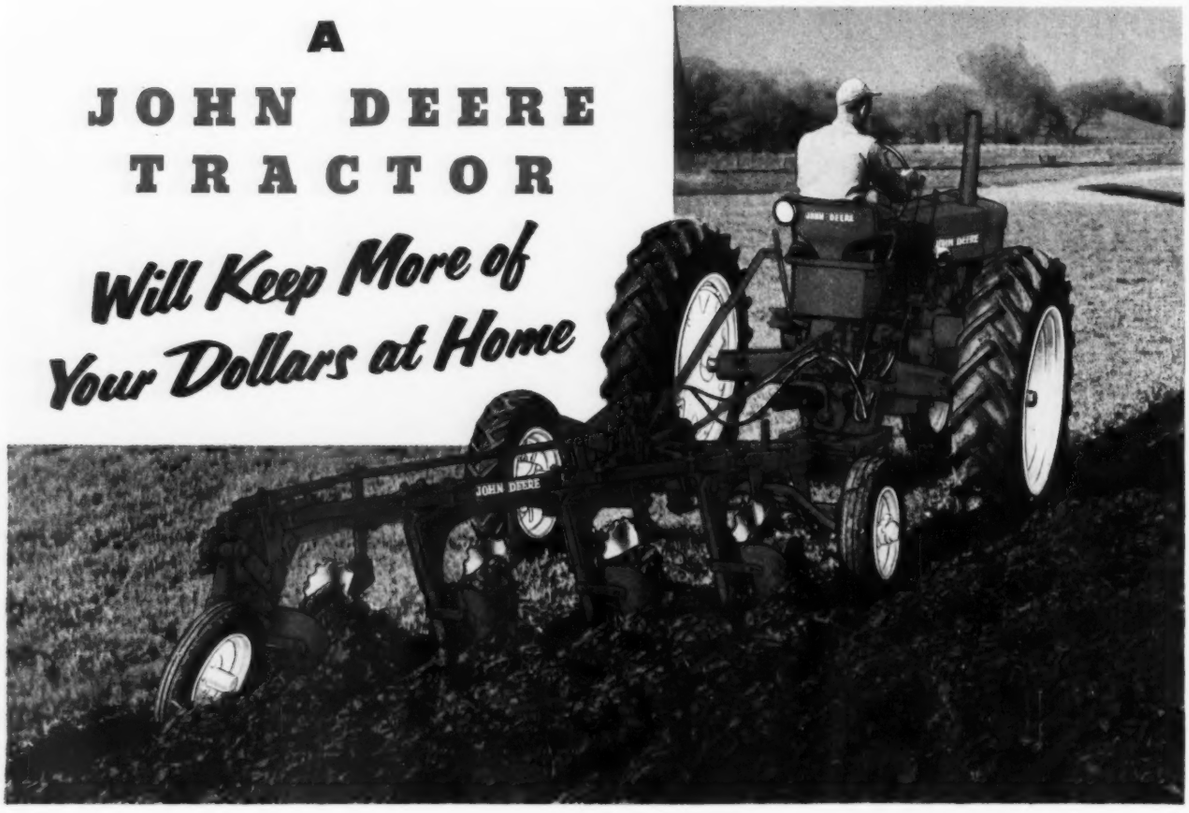
Address or RFD_____

Town_____ County_____

State_____ I feed about_____ calves.

A JOHN DEERE TRACTOR

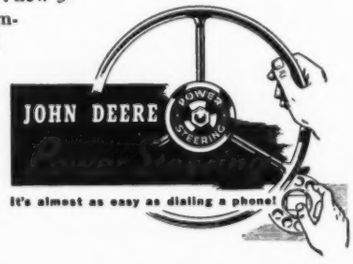
Will Keep More of Your Dollars at Home



THERE'S no doubt about it—you'll keep more of your dollars at home with a John Deere Model "50," "60," or "70" Tractor.

MORE WORK PER DAY. Even the "50"—low-priced youngster of this famous trio—has a tremendous appetite for work. It pulls *3-bottom* plows, *8-foot* disk harrows in most conditions . . . plants and cultivates *four* rows at a time . . . operates the brand-new *one-row mounted cotton picker* . . . handles a *two-row* mounted corn picker, and saves time and labor every step of the way by increasing the amount of work *one* man can do in a day. And you get even greater work output per day with the 3-4 plow Model "60" or the king-size "70."

ALL THE MODERN FEATURES. You'll enjoy all the modern time- and labor-saving features in these new John Deere General-Purpose Tractors—"live" Powr-Trol for effortless, accurate control of implements . . . "live" power shaft . . . new 3-point hitch with a complete line of matched working equipment, and now, the newest feature of all—John Deere *factory-engineered* Power Steering that provides new freedom from steering effort in *all* soil conditions.



All these features plus matchless fuel economy and rock-bottom upkeep costs make a John Deere "50," "60," or "70" your best tractor buy. Make a date with your John Deere dealer to see —and drive—one of these new tractors soon!

MODEL "50" 2-3 PLOW | MODEL "60" 3-4 PLOW | MODEL "70" 4-5 PLOW

JOHN DEERE

MOLINE JOHN DEERE QUALITY FARM EQUIPMENT ILLINOIS

SEND FOR FREE LITERATURE

JOHN DEERE • Moline, Ill. • Dept. J54

Please send me literature describing the new John Deere "50," "60," and "70" Tractors.

Name _____

R.R. _____ *Box* _____

Town _____ *State* _____

The same is true with tractor tires. The casing, like the horse, is your big investment. You can give those worn tires new traction with Vacu-Lug! Using this revolutionary process, new lugs are vulcanized to the casing to hold like a weld.

Yes, Vacu-Lug gives you new tire performance at half the cost of quality new tires. It offers the two most important ingredients for a successful product — performance and price. The Vacu-Lug Process has been approved by leading laboratories, farm bureaus and the United States Department of Agriculture. Vacu-Lug is convenient — there's a shop near you!

BEFORE
Examine your tires, both on your tractors and other farm equipment. If the lugs are low and rounded, you are not getting full power and performance from your equipment.

AFTER
High, square-shouldered lugs have replaced worn ones. Now you can get full power and performance from your equipment and save money due to power loss from worn treads.

Cuts and breaks in casings can be repaired at the same time the tire is relugged. Bring in those worn casings for a free inspection.
FOR THE NAME OF YOUR NEAREST VACU-LUG SHOP WRITE:

VACU-LUG PROCESS — Turns the Earth

AMERICAN TIRE MACHINERY, Inc.
Muncie, Indiana

The Farm QUARTERLY

Autumn, 1954, Volume 9, Number 3

CONTENTS

STOCK

Are Shows Slipping? 28
Early Weaning of Pigs 32
We Can Stop Rabies 36
The Standardbred 52

CROPS

Will the International Wheat Agreement Survive? 42
Ground Cover 66

EQUIPMENT

Rotary Cutters 44
Factory on Wheels 62
Ice Control 64
Self-Feeding Barns 68
Automatic Poultry Houses 70

FEATURES

The Termite 34
The Women 38
Mayan Farmer 46
River Drivers 56
Pennsylvania Barns 58

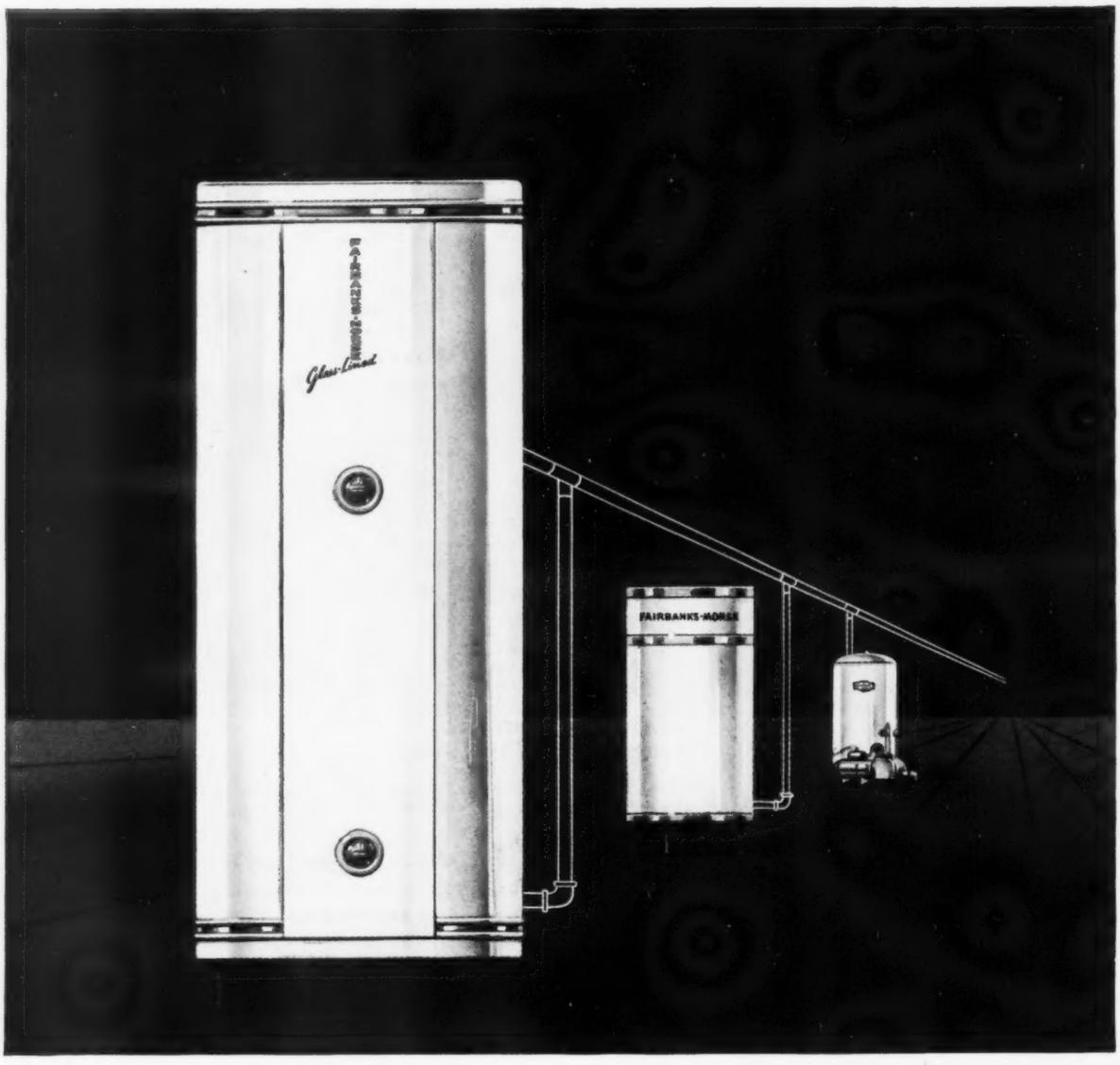
DEPARTMENTS

Poultry Yard 10
The Dairy Barn 11
Coming in Winter 14
The Farm's Pictures 14
Letters 16
Over the Back Fence 18
Farm Books 22
Index to Advertisers 139

THE FARM QUARTERLY
22 East Twelfth Street, Cincinnati 10, Ohio

R. J. McGinnis, *Editor*
Fred Knoop, *Executive Editor*
Grant Cannon, *Managing Editor*
Chas. R. Koch, *Associate Editor*
C. Chester Charles, *Research Editor*
Kirk Polking, *Circulation Manager*
James Rosenthal, *Production Manager*
Betty K. Green, *Editorial Secretary*
Aron M. Mathieu, *Business Manager*

Farm Quarterly is published Spring, Summer, Autumn and Winter. Price 50c a copy; $2.00 a year, $3.50 two years, $5.00 three years. Add $1 per year for countries outside USA and Canada. Send check to Farm Quarterly, 22 East 12th Street, Cincinnati 10, Ohio.



WHEN IN DOUBT, BUY QUALITY!

It is always safer and more satisfactory to buy quality—such as Fairbanks-Morse puts into its water heaters, softeners and water systems. You will enjoy more years of trouble-free service, and your first cost is likely to be your last.

Ask the Fairbanks-Morse dealer in your town to show you why you get more for the dollars you invest in Fairbanks-Morse water heaters, softeners, and water systems. Fairbanks, Morse & Co., 600 S. Michigan Avenue, Chicago 5, Ill.

FAIRBANKS-MORSE

a name worth remembering when you want the best

WATER SYSTEMS • MOWERS • MAGNETOS • PUMPS • MOTORS • SCALES • DIESEL LOCOMOTIVES and ENGINES

New CASE Corn Harvester

Saves the bushels you lose...

. . . plus chopped leaves and stalks

- **for low-cost roughage**
- **absorbent bedding**
- **or field organic matter**

Now you can do something about the bushels usually lost by mechanical picking. The new Case Corn Harvester unit, which fits on the base Forage Harvester, saves practically every kernel that shells from the ear—salvage that means $6 to $10 an acre on the average. At the same time it chops or shreds leaves and stalks into valuable stover for dry roughage or low-cost silage . . . excellent bedding . . . or fine ground cover that makes plowing and disking so much easier.

For regular silage, you use the same base machine. Just wheel the Row-Crop unit into place, tighten three bolts and go. Chops corn, sorghums or any row crop into lengths from less than ½-inch to 3 inches or more.

One man works two rows with the Case Picker-Sheller . . . and picks, husks, cleans, hauls and unloads up to 600 bushels a day. With help so scarce...and high-priced too . . . you get this job done at low cost in fast time.

Be sure to ask about the Case Income Payment Plan for buying money-saving machines with payments scheduled when you have money coming in.

Make the most of a crop that cost money to grow

There's plowing, disking, planting . . . cultivating once or more . . . adverse weather and borers to fight. Your costs gradually climb to a sizeable investment. To get back the most for your money, time and labor . . . you want to harvest efficiently, fast . . . get maximum yields. That's where Case Corn Machinery pays you well, saving that part of the crop ordinarily lost . . . those extra bushels, those leaves and stalks whether for silage or stover . . . plus a substantial reduction in costly man-hours, repairs and breakdowns. Call on your Case dealer now—get the money-making facts about Case Corn Machinery.

SEND FOR FULL STORY

Check below or write on blank line any farm machine or tractor that interests you. Send to J. I. Case Co., Dept. J-904 Racine, Wis.

- ☐ New Corn Harvester
- ☐ Big Picker-Sheller
- ☐ Forage Harvester with Row-Crop unit

What else_____

Name_____

Post Office_____

RFD_____ State_____

Now you can double field time between ring jobs!

HERE'S WHY:

A. Cylinders wear most at the top

B. Chrome-plated piston rings resist wear

C. Therefore, the installation of chrome-plated TOP rings retards cylinder wear!

Top rings operate where heat is highest, pressure is greatest, and lubrication is poorest. That's why old style piston ring sets, without solid chrome plate on the TOP rings as well as oil rings, cannot give complete wear protection.

Perfect Circle's 2-in-1 Chrome Piston Ring Set has BOTH top and bottom rings plated with thick, solid chrome. And the result? Thousands of extra hours of top performance, even under the most severe kind of farm service!

For new engine life, sustained power and oil economy—with no tedious break-in period—re-ring your car, truck or tractor with 2-in-1! Perfect Circle Corporation, Hagerstown, Indiana; The Perfect Circle Co., Ltd., Toronto, Ontario.

Solid chrome plating on top and bottom rings gives complete wear protection throughout entire area of ring travel. Only 2-in-1 furnishes alternate HiPressure spring with every oil ring, for badly worn engines.

Perfect Circle

2 in 1 chrome piston rings

The Standard of Comparison

Poultry Yard

Liming the Deep Litter The deep litter in a poultry house produces feed for the chickens by encouraging the growth of friendly bacteria in much the same fashion as a cow's rumen. Each day the litter is reinoculated with bacteria in the droppings and these microscopic animals, which have been producing vitamin B_{12} in the intestinal tract of the chickens, go right on creating this vital food ingredient in the litter. The chickens scratching in this thick dry pack receive nourishment not available to chickens raised on clean litter.

Autumn is a good time to build up a pack of litter when the pullets are taken from the pasture and put in the laying pens. With the first three-inch layer of straw, lime is added to prevent the litter from forming a pack that could easily be substituted for paving material. The recommended procedure is to add two pounds of hydrated lime (pulverized limestone won't do the job) to each five square feet of floor space. The litter is built up with the addition of more straw and hydrated lime as the old litter gets quite dirty. The lime keeps the litter crumbly which allows air to get through the mass and dry it out. Occasional stirring also helps keep the litter dry. Wet litter around the fountains or windows should be removed.

Egg Conveyor Spares Backs On the Harold Honnegar farm, Strawn, Illinois, eggs are moved easily from the cool basement egg room to the truck loading dock by means of an egg crate conveyor. The conveyor is a canvas belt the width of an egg crate with riveted cross pieces; it moves on rollers mounted on an angle iron frame. Each week the quarter horse motor which powers the conveyor saves the poultryman the task of carrying 50 crates of eggs up the slippery cement stairs.

Dairy Barn

Ketosis, a Bovine Ulcer A man gets ulcers and a cow gets ketosis, and for many of the same reasons. Just as stress and tension may bring on an ulcer, a cow under stress may develop an imbalance of carbohydrates in feed and sugar in her system, causing ketosis, also known as acetonemia. This imbalance may be caused by stress and strain on the cow's digestive system set up by high milk production, cold, injuries, diseases, a swift kick, or a harsh word. Ketosis is a symptom rather than a disease, vets say, and the best cure may be to feed the critter right and treat her gently.

How to Breed All Heifer Calves One often finds little gems in the old farm magazines. One such appeared in the *Pennsylvania Cultivator,* August, 1848. For what it is worth, it is here reprinted for the information of those who would like to have their dairy cows drop all heifer calves. One need not be unnecessarily alarmed by the fact that this method was based on what happened in the British peerage. Here it is:

TO BREED MALES OR FEMALES AT PLEASURE.
THE BRITISH PEERAGE

To breeders of stock it would be highly desirable to be able in some way to cause the production of *males* or *females* at pleasure —to multiply the number of *cow* calves of a high breed, or of *bucks* from a high blooded stock of sheep. The rule among the *French,* to accomplish this desirable result, is to make that parent of whose sex the offspring is desired, the most *robust* and *vigorous* of the two, at the time of co-habitation. But the results of fair experiment, in this country, have not confirmed the accuracy of this method. On the other hand, the *English* rule for determining the sex of animals, has been found much more reliable. This is founded upon the *relative ages of the parents.* According to this rule, *if the male is younger* than the female, or if they are both of the *same* age, the offspring will probably be *female.* If the male be but little older than the female, a few months or a few days, the sex will be doubtful and probably depend on the relative health and strength at the time of impregnation. And, lastly, if the *male be considerably older than the female,* WHILE YET HIS ANIMAL POWERS ARE UNDIMINISHED IN VIGOR, the greater the difference the more likely will the offspring be *male.*

The following table, drawn up from the records of the British peerage, where every particular of ages and marriages have been recorded, would seem to support the English rule, at least so far as the human animal is concerned:

When the husbands were younger than their wives, to one hundred girls were born eighty-six boys.

When the same age as their wives, to one hundred girls were born ninety-four boys.

When older from one to six years, to one hundred girls were born one hundred and three boys.

When older from six to eleven years, to one hundred girls were born one hundred and twenty-six boys.

When older from eleven to sixteen years, to one hundred girls were born one hundred and forty-seven boys.

Then influence of age, as shown in this table, is too striking to be attributed to chance. As the same general laws govern all *animal* natures, the influence of age would doubtless be equally observable upon the lower animals as upon mankind.

The editor of the *Pennsylvania Cultivator* would suggest, that to "make assurance doubly sure," there might be a combination of the French and English systems.

Sweeter Milk A chemical, menadione, has been shown to make cows produce milk which will stay sweet many times longer than normal. Cows given this chemical by University of Florida research workers produced milk which stayed fresh for 24 hours at blood temperature. When the milk was stored at 50 degrees F it stayed fresh for 20 days—normal milk lasted but five days.

"Irrigation Saved Our Potatoes"
"I'd hate to think what would have happened to those potatoes if we didn't have irrigation last summer," says a Maine grower who used 12,000 feet of lightweight aluminum pipe to raise his annual 40,000 bushel spud crop.

"Irrigation Cut Feeding Costs . . . Produced More Milk"
"Planning production with portable sprinkler irrigation really paid off for me," says an Oregon dairyman. "I've cut down my summer feeding costs and I am getting more milk than formerly during the dry summer pasture."

"Sprinkler Irrigation Best For Our Orchard"
"We have found aluminum pipe and sprinklers to be the best method of water distribution we have ever used," reports an Ohio orchardist.
"Our apples and peaches respond equally well and irrigation is definitely a must for us."

INCREASE YOUR INCOME

WITHOUT INCREASING YOUR ACREAGE!
FARM INTENSIVELY, MORE PROFITABLY

WITH PORTABLE SPRINKLER IRRIGATION

A portable sprinkler irrigation system will up-grade your crops . . . increase yields . . . protect your profits and increase your income. It will supplement seasonal rains . . . start crops earlier . . . bring earlier harvests . . . extend growing seasons . . . often make second plantings possible. Plan production and farm more intensively . . . you can with portable sprinkler irrigation.

PLAN FOR TOMORROW, TODAY . . . Contact your local dealer who handles strong, lightweight Reynolds Aluminum Irrigation Pipe today. He'll gladly plan and give you an estimate on a portable sprinkler irrigation system engineered to your particular requirements.

This sign identifies dealers who sell Reynolds Aluminum Irrigation Pipe.

This label identifies Reynolds Aluminum Irrigation Pipe.

Member of the SPRINKLER IRRIGATION ASSOCIATION

REYNOLDS ALUMINUM

REYNOLDS METALS COMPANY,
2578 S. Third St., Louisville 1, Ky.
Please send "More Income Per Acre", your new illustrated booklet on the applications and advantages of portable sprinkler irrigation.

Name_____

R.F.D. or Street_____

Town_____ State_____

B.F.Goodrich

Power-Grip tractor tire will get full power out of your tractor, too!

It looks bigger—it is bigger!

That's what farmers across the country say about the great new Power-Grip tire. Measure the big, broad tread of this B. F. Goodrich tire. You'll find that no other tire is wider. Then count the cleats on different makes. Time after time you'll find that in the same size tire, Power-Grip has more cleats. A wide tread with plenty of cleats bites into the soil better, gets full power out of your tractor in forward or reverse.

"More 'pull-power', no slipping and spinning"

So says Ruben Neitsch, co-owner of Gonzales Sanitary Dairy Farm about new B. F. Goodrich Power-Grip tractor tires. Thirty machines, including 6 tractors, work this 700-acre farm on the Guadalupe River near Gonzales, Texas. Neitsch likes the firm hold Power-Grip cleats give. They're longer and higher, have a bigger face area to press against the soil. Result: you get greater drawbar-pull even in slippery going, work more land in less time.

"Full penetration across entire tread width" →

Ed Aufdenkamp farms 240 acres near Doniphan, Nebraska, operates two tractors on B. F. Goodrich tires. Aufdenkamp (at right in photo) likes curved Power-Grip cleats, reports they penetrate better in hard ground. Husky Power-Grip shoulders are higher to dig deeper, square cut to defy slippage. The cleats are specially reinforced to stand rigid under pressure, wear longer. Power-Grip tires give you more working power for your money.

←BFG truck tires never off the wheel

R. A. Craig makes semi-weekly trips to market in his B. F. Goodrich-equipped truck. Thousands of miles over back roads near his Chesterland, Ohio, farm have brought Craig no tire trouble whatsoever. See your local B. F. Goodrich retailer. He will show you how to get better service at less cost with B. F. Goodrich tires. The address is listed under Tires in the Yellow Pages of your phone book. *The B. F. Goodrich Co., Tire & Equipment Div., Akron 18, Ohio.*

RESEARCH KEEPS
B.F.Goodrich
FIRST IN RUBBER

New Sealed Bearings and Dyna-Air Chaff Control

in Massey-Harris New '90' and '80' self-propelleds

80 **NEW** — 61 sealed bearings • improved belts, pulleys, inspection doors • enclosed brakes • 32-inch cylinder • full "cylinder-width" walkers, chaffer and cleaning sieves • 14-, 12-, 10-foot models • Special rice models.

90 **NEW** — 61 sealed bearings • improved belts, pulleys, inspection doors • enclosed brakes • 37-inch cylinder • full "cylinder-width" walkers, chaffer and cleaning sieve • 16-14 and 12-foot models • Special rice models.

*optional equipment

...plus Constant Power Steering*

Only three of 45 new advantages for 1954

EXCITING new performance! A host of new advantages that give the Massey-Harris 90 and 80 more capacity . . . more value for every dollar you invest.

Just one of these — sealed bearings — is enough to give every combine owner ideas of more profit per day. Think of it — 61 sealed bearings . . . 61 points that do not need servicing . . . 61 reasons why you can harvest faster, cover more acres a day.

And think of the field stops sealed bearings eliminate. The time spent in greasing you save . . . the operator expense saved. The extra time in the field these savings give you are enough to pay the operator's wages every day.

And now — Massey-Harris Constant Power Steering. Effortless control in rough, wet, or loose ground. Finger-tip control! The ease and smoothness of hydraulic power working for you . . . the wonderful relaxed feeling and assurance of instant response only Constant Power Steering provides.

New Dyna-Air Chaff Control eliminates dead spots, chaff build-up on the sieves for a cleaner sample. It's the result of aerodynamic wind tunnel tests—modern, scientific.

And with all of their new improvements, the 90 and 80 retain famous Massey-Harris Balanced Separation. There's perfect control of grain and straw through every step of harvesting for more and cleaner grain, more profit.

See your Massey-Harris dealer for complete facts. He'll be glad to give you detailed information. For free folder write, The Massey-Harris Co., Dept. J-222, Racine, Wis.

Check this partial list of new advantages

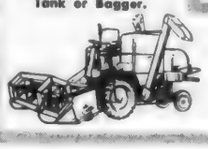
- Power steering*
- Sealed bearings
- Interlock between brakes and ignition
- Improved drive idler
- Re-designed gleanings elevator
- New inspection doors
- Enclosed brakes
- Improved throttle lever
- Bigger fan bearings
- New shaker shoe
- Re-designed shaker shoe bearing
- Walker body strengthened
- Stronger transmission pulley spring
- Larger shaker shoe crank
- Entire frame and body strengthened

. . . all for the purpose of making the Massey-Harris 90 and 80, the finest combines in the field.

Make it a Massey-Harris

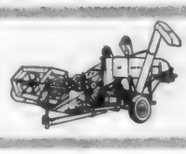
Parts and Service through more than 2500 authorized dealers

70
Priced for smaller farms. 12-, 10- and 8½-foot cut. Tank or Bagger.

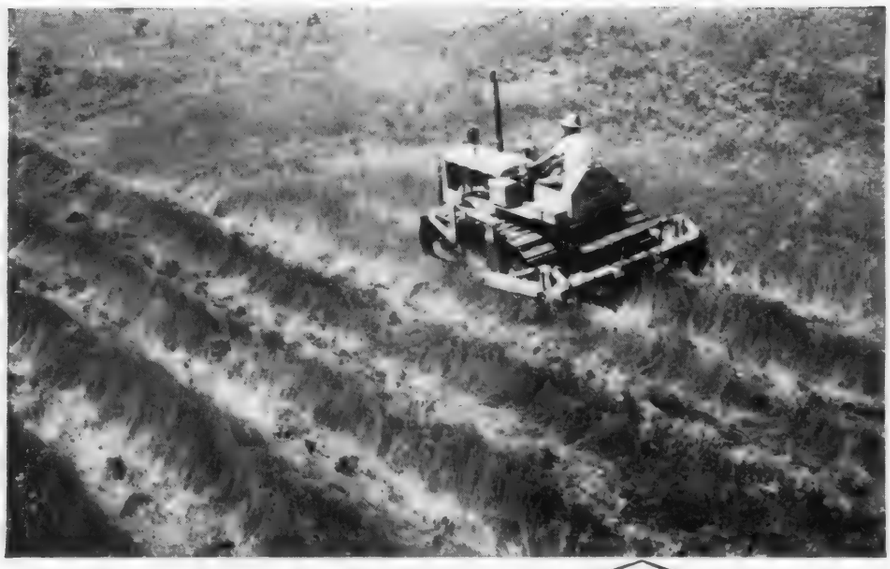


60 S.P.
28-inch cylinder. Full cylinder width body. 10-foot cut.

60 P.T.O.
28-inch cylinder. Full cylinder-width body. 8-foot cut.



Clipper 50
5-foot cylinder. Straight-thru design. Tank or bagger. 6- or 7-foot cut. Engine or P.T.O.



WOULD YOU LIKE TO DO THIS?

Your Caterpillar Dealer invites you to try out a Cat Diesel Tractor on your farm. See if you agree with Robert Eichelberger, York, Pa. when he says: *"My D4 does more work than two wheel-type tractors. Saves the labor of one man and uses only one-third the amount of fuel. How can you beat that? I have land to clear, and I couldn't do without the D4 and Bulldozer."*

OWN A TRACTOR *that will help you do the work of 2 men?*

SAVE 60% TO 80% *on your fuel bill?*

CLEAR LAND...*improve your place in your spare time?*

You can when you have a 43 drawbar HP CAT® D4 Tractor!

Pull 10,600 lbs.—that's about twice as much as most 3-4 plow wheel tractors developing 43 drawbar horsepower. Make fewer trips across the fields. Pack your ground less. Save time. Work where wheel tractors slip.

Burn 2-3 gallons of diesel fuel per hour. In most areas, that's a savings of 60% to 80% because No. 2 burner oil costs about ½ as much as gasoline, yet delivers about 20% more power. Medium-large farmers often save $300-$400 per year.

You've traction, power, ruggedness to wade into a heavy stand of timber or brush and clear it in a hurry. You'll work for less than you'd pay a contractor.

Caterpillar Tractor Co.
Peoria, Ill., U.S.A.

DIESEL FARM TRACTORS
TOOL BARS • IMPLEMENTS

CATERPILLAR®

NAME THE DATE YOUR DEALER WILL DEMONSTRATE!

Free booklet "CLEARING FOR CROPS."
Caterpillar Tractor Co.
Peoria, Ill., Dept. FQ94
☐ Send me "Clearing for Crops."
☐ I want a demonstration on my farm.
☐ I'm a student.

I farm.....acres. Principal crops are .....

Name .....

Address .....

City.....State.....

COMING IN WINTER

For many months Finland will be locked tight in ice and snow; summer and the growing season will be short and explosive. The admirable Finns make the most of their short summer, exploiting the agricultural trinity of crops, livestock, and forest. A staff reporter and a photographer last summer made an extended visit to Finland, and brought back an intimate story of how farmers live and work in the twilight of the Arctic regions.

Paul Larner is the manager of the Sutter Basin Farm in the Sacramento Valley of California. Every year he feeds out thousands of sheep and steers. For the last year he has been experimenting with advanced feeding ideas, including feeding dehydrated ensilage pellets from a battery of 24 Harvestores. Now, he is using ladino clover, alfalfa and pasture grass silage with minerals and grains to produce some exciting new dehydrated feeds for sheep and cattle. We are glad that Mr. Larner was willing to tell our readers about his thinking in cutting the costs of feeding.

Metal has come into close competition with our traditional wood uses, but the timber people are closing the gap by developing new uses, little dreamed of a generation ago, for wood on the farm. Our story, "New Wood Products and Their Uses" will describe how these products can help the farmer.

There will be stories on stock feed made from seaweed and kelp, which is being developed to increase the feed supply for future farmers: on how to build a septic tank; the ABC's of minerals and how they are utilized by animals: how to manage straw to advantage; and the latest developments in the fight against that dread livestock disease, leptospirosis.

THE FARM will answer a pressing question which has been a growing concern of government and farmers, "Is the small farm disappearing?" There will be stories on how to grow quail as a farm crop, and how to load a stubborn cow into a truck.

Features will include an exposé of the famous "mummy wheat" hoax, and a tale of the odd and sometimes zany inventions thought up by imaginative farmers. We hear conflicting opinions about our soils—some say they are wearing out; others point to our increased per acre production and ask how this can be done if the soil is wearing out. Our soils story will give the best thinking on both sides of the question, which is of vital interest to all farmers.

THE FARM'S PICTURES

Cover by Bob Taylor

10—George Laycock. 17—Rumanian Information Service. 28—J. C. Allen & Son. 29—Aberdeen Angus Ass'n.; American Shorthorn Breeders' Ass'n. 30 and 31—Fred Knoop. 33—Grant Cannon. 34—Drawing by Fred Eichenberger. 35—U.S.D.A. 36 and 37—Kazik Pazovski. 38 thru 41—Fred Knoop. 42 and 43—Bob Taylor. 42 bottom—Bemis Bros. Bag Co. 45 thru 51—Fred Knoop. 52—Courtesy U. S. Trotting Ass'n.; Joe Munroe. 53 thru 55— Joe Munroe. 56—Kosti Ruohomaa from Black Star. 57—Bob and Ira Spring, FPG. 58—Jane Latta. 59—Kazik Pazovski; Roy Frankenfield. 60—Jack McManigal; Henry J. Kauffman. 61—R. J. Lewis from J. W. Stair. 62 and 63—George X Sand. 64—Joe Munroe. 65—Johnson Gas Appliance Co. 66—Brillion Iron Wks. 67—A. H. Scott. 68—Wm. B. Nevens. 69—J. C. Allen & Son; Wm. B. Nevens. 70 thru 73—Myrton S. Reed.

"EATON AXLES PAY FOR THEMSELVES FAST—THEN START PAYING YOU"

...says Bob Buerkle, well-known Kansas wheat farmer

"THE LOW GEARS PAY HERE," says Mr. Buerkle. "In the field when harvesting wheat, we can match the speed of the truck to that of the combine and hold a steady pace without bucking or frogging. And we don't have to worry about bogging down in soft spots—the low-range gears give us the pull we need to keep moving with full loads."

"WE'VE FOUND that Eaton 2-Speed Axles are an investment that really pays off," says Bob Buerkle, well-known wheat farmer of Garden City, Kansas. "The cost of an Eaton 2-Speed, we get back many times over in the extra work the truck will do—the time saved both in the field and on the road, to say nothing of the maintenance savings.

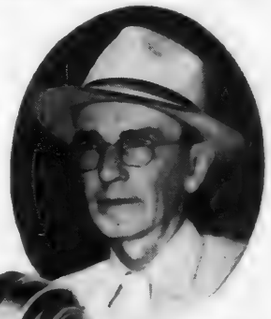
"In the field, our Eaton-equipped GMCs work perfectly with the combine. The low-range gears allow the truck to move along smoothly at the same speed as the combine. We're never bothered by soft ground—the Eaton 2-Speed gives us the slow, steady pull we need. We don't have to load light; we can always pull out with full loads.

"On highway runs to the elevators, we cover the distance in 25 per cent less time because of the Eaton 2-Speed high-range gears. We haul more loads per day. At the same time, we don't have to punish our engines—we make better road speeds with lower engine speeds—and that cuts dollars off our upkeep costs."

A farmer needs a truck that's a top performer, both *off* the road and *on* the road—and an Eaton-equipped truck is just that. Ask your truck dealer for a demonstration. He can soon show you how "Eatons pay for themselves fast—then start paying *you!*"

"THE HIGH GEARS PAY HERE," says Mr. Buerkle. "Once we're on the road, we don't want to crawl like a snail—and we don't have to with the Eaton 2-Speed. We can make highway runs to the elevators in 25 per cent less time with the Eaton Axle. We haul more loads per day. And we make this saving in time plus a *saving in engine wear*—with the engine running at lower r.p.m."

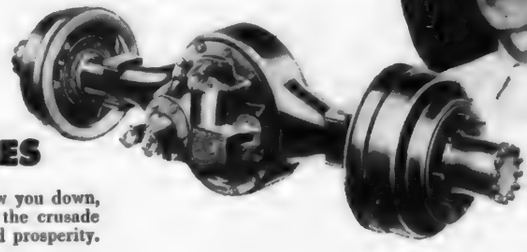
"FARMERS PREFER EATONS," says Orville Nanninga, GMC dealer of Garden City, Kansas. "This is an agricultural area, and farm trucks are usually used for hauling grain and livestock. I've sold about 100 farm trucks in the past five years equipped with Eaton 2-Speed Axles. The Eaton 2-Speed is a rugged axle and a great performer."



EATON

EATON MANUFACTURING COMPANY, CLEVELAND, OHIO

2-SPEED *Truck* AXLES



MORE THAN 2 MILLION EATON AXLES IN TRUCKS TODAY

P.A.R. **PROJECT ADEQUATE ROADS:** Crowded highways slow you down, add to the cost of marketing farm products. Join the crusade for more and better roads essential for progress and prosperity.

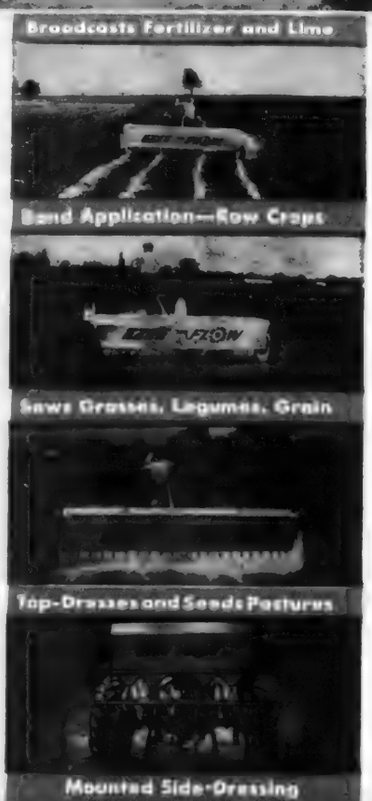
ONLY
EZEE FLOW
Registered Trademark
GIVES YOU
5 MACHINES in 1
FERTILIZES—LIMES—SOWS GRAINS,
LEGUMES—SIDE DRESSES

See Why More Farmers Choose
EZEE FLOW
Than Any Other Spreader!

- GUARANTEED to spread any fertilizer in any condition (hard, lumpy, wet—even wet lime) uniformly and without clogging!
- GUARANTEED "exact rate" spreading. You "get what you set" from 10 to 4,000 lbs. per acre. Prevents waste . . . saves money!
- GUARANTEED "exact rate" sowing of grain, most legumes and grasses (even brome) . . . prevents waste, helps assure even stand!
- GUARANTEED—dozens of *patented* "can't-be-copied" features!
- GUARANTEED to out-perform and out-last any other spreader on the market!
- EZEE FLOW, "World's Best" Spreader, challenges "all comers" to any test of uniform, accurate spreading! EZEE does it—best! For full information on Ezee Flow, and what it can do for you, see your Ezee Flow Dealer and MAIL COUPON, TODAY!!!

(5, 8, 10 and 12 ft. models and special equipment for every size and type of farm)

© 1954



Clip and Mail Now!

Free Picture-Packed Booklet

EZEE FLOW Division — Dept. FQ-A54
AVCO Dist. Corp.
10 So. LaSalle Street, Chicago 3, Ill.

Without cost or obligation, send EZEE FLOW picture booklet showing how to save up to 50% on fertilizing and seeding costs. It's packed with fertilizer data!

NAME _____
ADDRESS _____
TOWN _____ STATE _____

Letters

The Big Squeeze

Sirs:

Very interesting your article "Lifetime Fences." I have been stretching wires for many years in my three thousand and odd acres of pastures and farm land, in effect I have got miles and miles of it.

In said article I did not find a single suggestion of planting alive trees, at least on the boundary lines of the property, that's what we do down here, and surely fences last more than a lifetime. Pruned and well kept trees add beauty to the landscape, shadow for the cattle, rest for the birds, moisture to the land, checks the winds and check erosion, and eventually more posts for more fences.

You Americans are a very practical people, you squeeze the utmost out of the land, and I know that you can squeeze lots of useful things out of a tree.

Guatemala, C. A. César Bressani

Multiflora rose was treated as a separate story some time ago, but we would like to learn what variety of trees Senor Bressani uses.

Which Rock for Kraut?

Sirs:

I enjoyed your article on sauerkraut very much, but I would question Mrs. Harrison's practice of weighing down the plate on the top of the batch with a limestone rock. I tried that once and the acid from the kraut ate into the rock and caused the kraut to spoil.

Mrs. John Wrightman
Springfield, Illinois

This technical question on sauerkraut has been referred to Mrs. Harrison, who says: "Probably the lady didn't keep her kraut washed often enough. I have asked several people who make kraut the same as I do and they are of the same opinion. Sometimes my rock will turn dark, but that is all."

Attention, Mr. Benson

Sirs:

Thank you for publishing the article, "The Night Riders." It is a true statement of the facts as I remember them; much could be added to the article, however.

Though Chas. H. Hart and Felix G. Ewing were many years my senior, they were both my neighbors and after I grew to manhood they became close friends of mine. Two finer, more public spirited men than these never lived.

My boyhood memory of the events as described by Mr. Koch was one reason I was willing to serve A.A.A. in some capacity from 1933 until August, 1953, when Secretary Benson accepted my resignation as State P.M.A. Committeeman, a resignation he had asked for because I was a Democrat.

Will you please send a copy of the QUARTERLY to Mr. Benson with the request that he read the article. Perhaps it will help him to see that crop control by government has become necessary in our complicated economic system of today.

Human nature has not changed in the last half century and if men can't get justice by peaceful means they will again take the law into their own hands.

Adams, Tennessee John M. Goodman

On the Mark

Sirs:

After reading your magazine for several issues I feel that it is time to write and thank you. In the "Summer" issue for 1954 a feature article was "How To Start From Scratch." This was the climax, for my wife and me, of a long search.

We had been wondering for a long while if a young couple without a silver spoon could make it farming. Thanks in part at least to your article we are going to try it.

Our story probably will be a lot different as we have had no prior experience on farms. However, we are healthy, young, and have a great amount of faith in the ability of a man to work the earth—at a profit. Perhaps we'll fail, but we don't think so.

In a year or two maybe we will be able to tell you the modern pioneer story. Until then we will continue to be faithful and thankful readers.

The L. E. Madoles

Zion, Illinois

How They Do It

Sirs:

In your Spring issue page 108, you write under the picture, "Unanswered is the question how to keep it supplied with spray and/or water."

As I was born in Poland and did work on farms in Germany and Denmark, I think I can answer your question. I did work on a contraption like it, except it was not on crawlers and

was of smaller size. The spray and/or water is supplied mostly by horse drawn wagons which are equipped with tanks or barrels of approximate capacity 1000 gallons each. On larger farms there may be three to five wagons kept busy for several days supplying the spray and/or water.

Homvyk G. Biclicki

Vancouver, B. C.

And Welcome You'll Be

Sirs:

I have often threatened to write to you but as I have so little to offer I think that modesty is no doubt the best policy. However, I will explain that we are a peculiar couple (not to mention our three kids) in that our hearts are really in America but our farm of 170 acres is in England. We carry a small Jersey herd, about 100 acres of grain, 5,000 broilers and we are now experimenting with corn. We have this year some 34 varieties, mostly U. S. hybrids, on test.

For years we have been wanting to get over and see you but government restrictions on dollars virtually prevent us getting much beyond the port of arrival; and your government won't allow us to earn money to keep ourselves when there. However, one day our dream may come true and we will be able to come over and really learn how to grow corn and broilers—and maybe become American.

David F. James

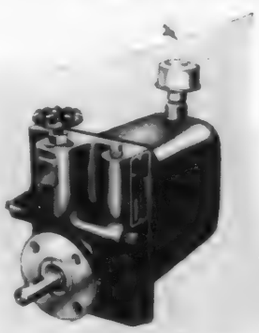
Alton, Hants, England

uses VICKERS POWER PACK to control bale weight

Among features available on the New Holland Model 66 Twine-Tie Baler is "Hydraformatic" . . . the first hydraulic bale tension control system. This system (powered by a Vickers Hydraulic Power Pack) automatically produces bales of uniform selected weight. A simple turn of the hand-wheel on the Power Pack (see below) adjusts tension to give the bale weight wanted regardless of type of material being baled.

This is another example of the many ways in which Vickers Hydraulic equipment is working on the farm . . . helping make a wide variety of jobs easier, quicker, more economical. The next time you buy farm machinery, it will pay you to make sure the hydraulic units are Vickers.

VICKERS® Hydraulic POWER PACK



This convenient and compact "package" consists of pump, overload relief valve, oil tank and filter. The Vickers Vane Type Pump is hydraulically balanced and has automatic wear compensation . . . delivering more oil while taking less power . . . having much longer life with minimum maintenance. Entire hydraulic system is protected against overload.

People who look for quality look for VICKERS.

6750

VICKERS Incorporated • 1400 OAKMAN BLVD., DETROIT 32, MICH.

Application Engineering Offices: ATLANTA • CHICAGO (Metropolitan) • CINCINNATI • CLEVELAND DETROIT • HOUSTON • LOS ANGELES (Metropolitan) • NEW YORK (Metropolitan) • PHILADELPHIA (Metropolitan) • PITTSBURGH • ROCHESTER • ROCKFORD • SEATTLE • TULSA • WASHINGTON • WORCESTER

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

You can see why BUTLER stock tanks last years longer

See how the seam between the sidewall and bottom on Butler Blue Ribbon tanks is *inset* so that stock can not step on it. The outer edge of the double-locked seam is flush with the tank side, forming a joint that'll stay water-tight for years!

Throw your weight against the top edge of a Butler tank! See how the reinforced top protects Blue Ribbon tanks against the crowding and pushing of thirsty stock. The sturdy 1⅛" steel tubing is driven down firmly against the sidewall top, then riveted firmly in place.

Kick the sidewall of a Blue Ribbon tank and you'll know why Butler tanks can stand the constant abuse of farm animals. Diagonal corrugations and deep-drawn swedges multiply the strength of the heavy-gauged, galvanized sides.

See how the new "Big Ham" fountains in Butler Blue Ribbon tanks give you convenient, long-lived watering facilities for *all* your livestock. Automatic fountain has a rugged, positive acting control valve. Round, 13" opening furnishes room for big hogs, calves or sheep.

For prompt reply, address office nearest you:

BUTLER MANUFACTURING COMPANY

7378 East 13th St., Kansas City 26, Mo.
978A Sixth Ave., S. E., Minneapolis 14, Minn.
921 Avenue W, Ensley, Birmingham 8, Ala.
Dept. 78A, Richmond, Calif.

I'm interested in Butler bins and the new Butler Force-Aire crop drying equipment. Please send me more information and the name of my nearest Butler dealer.

Name_____

P. O._____

R. F. D._____ State_____

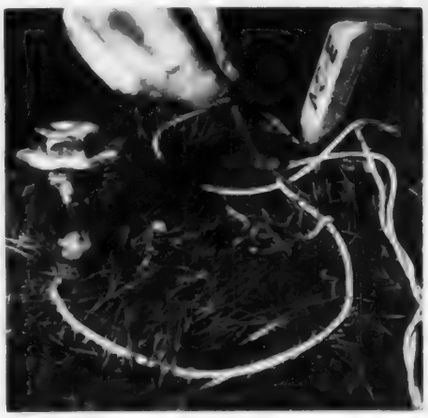
BUTLER STEEL PRODUCTS

Manufacturers of Oil Equipment
Steel Buildings • Farm Equipment
Dry Cleaners Equipment
Special Products

Factories located in Kansas City, Mo.
Galesburg, Ill. • Richmond, Calif.
Birmingham, Ala. • Minneapolis, Minn.

Over The Back Fence

Shocking News For Fishermen Until Ben Watts rigged up the electric worm catcher shown here, it was only the early bird or the man willing to dig for them that caught the worm. Now, Watts plugs in his device and sits back in an easy chair while the worms pop out of the ground ready for the bait can.



ELECTRIFIED WORMS wriggle out of the ground into the fingers of the lazy fisherman.

The worm catcher consists of a long electric cord and two ice-picks. Each wire of the cord is wrapped around an ice-pick and taped there. When the cord is plugged in, the picks are pushed into the ground about a foot apart. Even though you can push your finger into the soil between the picks without feeling any current, the worms feel it, and get out of the ground fast. Two precautions should be observed: (1) don't bring the picks together or you'll have fireworks and a blown fuse, and (2) be sure to use ice-picks with wooden handles—to use a pick with a metal handle is a shocking experience.

The Walls Have Ears Since the flit gun became standard equipment for the farmer, bugs are finding it harder and harder to stay alive. Those that set up housekeeping in kernels of grain have, up to now, enjoyed a sort of immunity as long as they stayed at home. Now, however, they too have come under the probing eye, or ear, we might say, of the scientist. Out at Kansas State College they have built a gadget which permits the eavesdropper to listen to the goings on inside a kernel of wheat. Their R. E. Adams says that insects give out two distinct types of sound. One is a low frequency scraping, believed made by the larva or pupa turning over in his sleep; the other is a high frequency sound, believed caused by chewing. Dr. Adams hopes it may be possible to determine the number of infested kernels, the species of insect, and its stage of development.

Ford TRACTOR

MAKE QUICK WORK OF ALL THESE FALL JOBS

Plow at faster speeds with the powerful Ford Tractor and 2-bottom mounted Dearborn Plow. On heavy pulls, traction is automatically added.

Dig post holes sitting down, faster than a dozen men can dig them by hand. Danuser Post Hole Digger quickly attaches to the Ford Tractor. Full range of auger sizes.

Clear rough pasture land, shred crop stalks with the Dearborn Rotary Cutter mounted on the Ford Tractor. Even cuts and chops up brush. Built to last.

Fertilize and seed pastures in one operation with the Dearborn Lime and Fertilizer Spreader equipped with seeder attachment*. Scatter-board also available*.

**Sold separately.*

Fill gullies, dig ponds with the Ford Tractor and Dearborn Scoop. It digs, hauls and dumps. Also handy for hauling feed, fertilizer, milk cans.

"Buzz" up to 20 cords per day, with the Dearborn Cordwood Saw. Powered and carried by the Ford Tractor, you can change locations quickly and easily.

Dearborn EQUIPMENT

...Find out about money-making farming all year 'round

Naturally, you first think of a tractor in connection with field work. And, the more a farmer uses a Ford Tractor in the fields, for plowing, discing, cultivating and the like, the more respect he has for the way it buckles down to heavy pulling and the amount of work it helps to get done in a day.

But in addition, the Ford Tractor can save countless hours on all the "extra" jobs shown above, plus many more such as subsoiling, terracing, cleaning feedlots and loading manure. So, for a money-saving tractor that makes farming easier, see your Ford Tractor and Implement Dealer. Tractor and Implement Division, Ford Motor Company, Birmingham, Michigan.

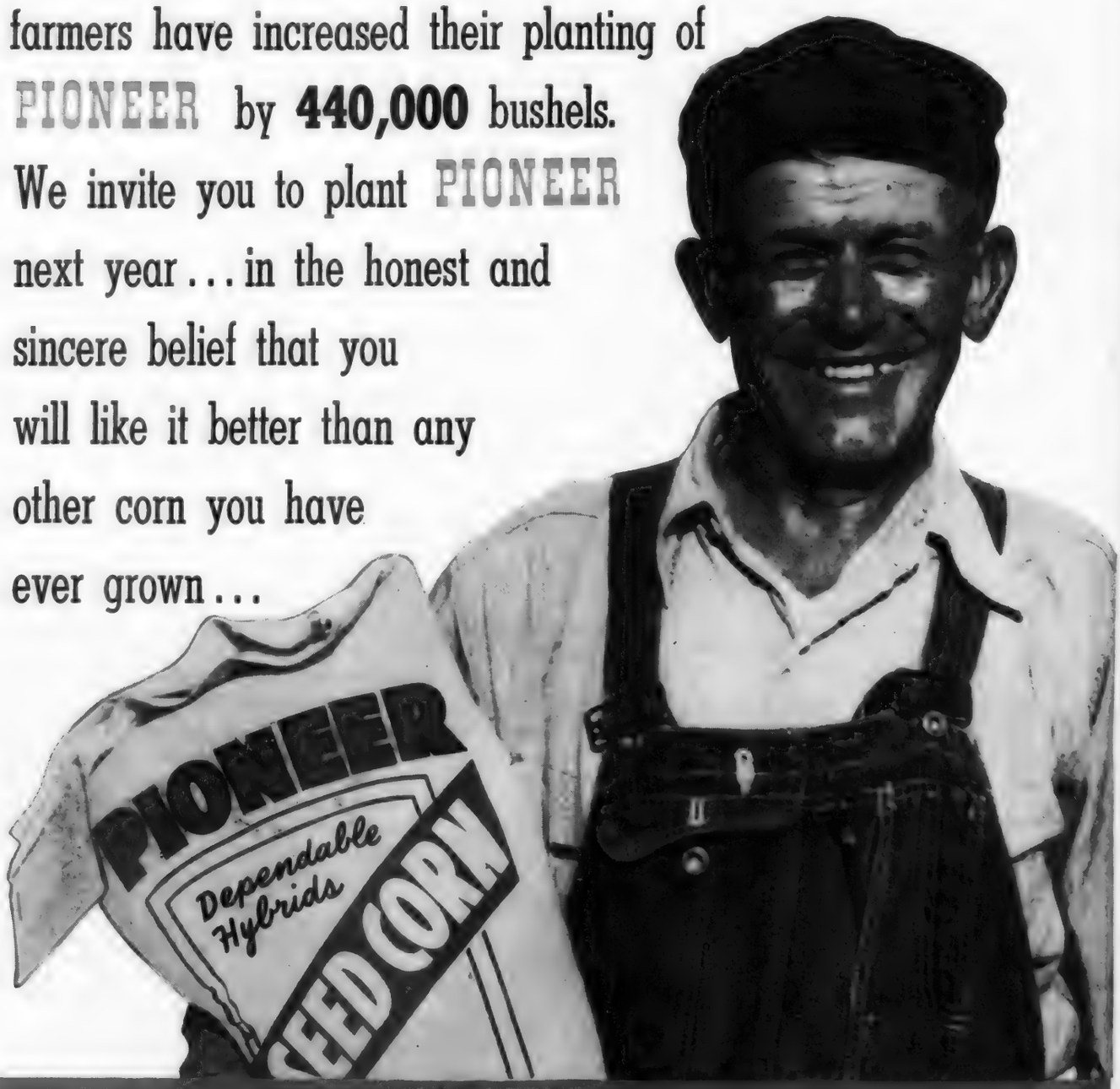
MONEY-MAKING FARMING with a FORD TRACTOR

Ford Farming

GETS MORE DONE ...AT LOWER COST

This is a picture of a typical and Happy PIONEER Customer.

And there are many more of them than there were just a few short years ago. In fact, in the last two years farmers have increased their planting of PIONEER by **440,000** bushels. We invite you to plant PIONEER next year . . . in the honest and sincere belief that you will like it better than any other corn you have ever grown . . .



PIONEER Hybrid Seed Corn is produced by the following companies:

Garst & Thomas Hybrid Corn Co. — Coon Rapids, Iowa

Pioneer Hi-Bred Corn Co. — Des Moines, Iowa

Pioneer Hi-Bred Corn Co. of Illinois; Princeton, Ill.

Pioneer Corn Co., Inc. — Tipton, Indiana

Mail Coupon Below

FOR Bigger AND Better Crops

Soil Can Make —Or Break You!

Without the right fertilizer in the soil, even the best farming cannot prevent stunted, deformed corn ears and weak stalks that lodge. Leading Agricultural Experiment Stations made these tests to show the benefit of using the right fertilizer.

Both joints and roots had rotted in the weak stalk and nubbin from a field not properly fed, shown by cutting down the center. This caused poor yield and difficult harvesting. It also robbed the soil of fertility a bumper crop would have returned.

The tremendous root system, sound stalk and perfect ear above was from a comparison plot where correct kinds and amounts of fertilizer were used.

Astounding Proof!

The right fertilizer, guided by soil tests, produced the bumper corn in bin at right.

It's also the secret of vigorous, healthy oats as demonstrated in pot 16. The wrong fertilizer formula will cut your profits on every crop.

low in nitrogen | low in phosphate | low in potash | used right fertilizer

These benefits on corn and oats are just as true for every crop on your farm. Don't miss the bigger yields you can have by owning a Sudbury Soil Test Kit!

OUR DARING Guarantee

YOU TAKE NO RISK

We are so certain you'll get bigger and better crops we'll refund the full purchase price anytime within a year if you don't.

If desired, use our Easy Payment Plan (see coupon).

TEST YOUR SOIL

Want to Get up to 227 Bu. Corn per Acre
125 Bu. Wheat • 5 Tons Hay • 30 Tons Tomatoes
906 Bu. Potatoes • Up to 300% Increase in Milk

Make every $1 you spend for fertilizer pay you up to $15 or more, in extra yield. A farmer in Ohio boosted production on corn 300%, oats 500%, wheat 100%, hay 300% with his Sudbury Soil Test Kit. So can you!

You not only make more money, you save money! Every season you'll save up to $15 an acre on fertilizer. Guessing wastes both time and money—like the farmer in Illinois who "guessed" he needed to spend $500 for lime but soil tests showed he didn't. That $500 paid for all the phosphate he found was really needed on 65 acres.

To Make More Money, Act NOW!

You can ***increase your income above your best year*** by getting more bushels or tons per acre. All over the country hundreds of thousands of farmers are doing this by soil testing. You'll produce record yields, and actually build up your soil for years to come instead of draining its vitality. ***In just two weeks your Sudbury Soil Test Kit will pay for itself many times over!***

The Under Secretary of Agriculture says: "To meet the cost-price squeeze, farmers must get higher yields per acre and greater production per animal. That means spending wisely to maintain and expand production." Crop experts say the average yield of American farms can easily be doubled within a few years. Soil Testing is the only answer to produce bumper crops in every field.

No Knowledge of Chemistry Needed

EASY AS READING A THERMOMETER

So simple anyone can use it. Even your first tests will be accurate and reliable. No waiting for reports—you get the correct answer right away. Ready to use anytime, anywhere. Takes only 10 minutes, costs less than 10c a test.

SUDBURY Soil Test Kit

This is our famous **Farmers deLuxe Kit.** Complete with everything for hundreds of tests. More valuable than all your stock and tools! Shows right amounts of nitrogen, phosphate and potash for each field. Also whether lime is needed (pH) and how much. Lifetime welded steel chest with carrying handle. Weighs only 12½ lbs. Easy instructions show needs of 225 different crops.

Big Value, only $29.95.

SEND NO MONEY

Order today and we'll mail C.O.D. plus postage. Or send check and we'll pay postage, saving you from $1.91 to $3.55 in postal charges.

FREE TRIAL

FREE BOOK

If you send cash, we'll also include the farm management book "Our Land and Its Care."

SUDBURY LABORATORY
Box 568, South Sudbury, Mass.

Send me the Farmers deLuxe Sudbury Soil Test Kit at the special low price marked below:

☐ Enclosed is $29.95; send postpaid; include free book, "Our Land and Its Care."

☐ Send C.O.D. only $29.95 plus postage.

Name.....

R.D. or St......

P.O...... *Zone*..... *State*.....

☐ Send on Easy-Payment Plan—I'll pay mailman $4.95 plus postage, then 4 monthly payments of $6.75 each.

400,000 Users Can't Be Wrong!

S.G.H. of Michigan "guessed" his potato field had enough potash but needed nitrogen. Tests showed he was wrong. He saved the nitrogen, bought potash and doubled his yield.

G.H. of Ohio "Have made many tests; like its simplicity and accuracy. Worth 1000 times its cost on my 320 acres; found them low in phosphate."

A.D. of Indiana nearly doubled his corn yields as a result of testing his soil. He also gets 30% more wheat and soybeans per acre.

W.L.D. of Pennsylvania saved $400 an acre on fertilizer. "The Kit has paid for itself over and over again." That's real satisfaction!

R.S.G. of Indiana tested his soil and discovered potash was badly needed. He has increased his corn yield 20%! He also reduced fertilizer costs by using only what his Sudbury Soil Tests showed was needed.

A.F.B. of Iowa increased his bean yield 50% by correcting phosphate and potash deficiencies his Sudbury Soil Test Kit revealed.

Hardware, Seed, Grain and Farm Supply Stores: Serve Your Customers by Carrying this Essential Aid to Better Farming.

SUDBURY LABORATORY, Box 568, South Sudbury, Mass.

World's largest makers of Soil Test Kits

because... **marlows** do the job better!

"Increased yield! Why *without Marlow Irrigation Pumps there'd be no yield.*" That's what George Orthman of Ramsey, N. J. said during last year's drought. He used a Marlow to get better, more marketable crops. For data on how to harvest greater profits, see your Marlow dealer or write for Bulletin SI-53.

CUT FEED COSTS 25% BY GRINDING

▶ *Four* tons of properly ground grain or roughage will produce as much milk and meat as *five* tons of unground feed. Grinding increases palatability, reduces feeding waste. Ground feed is easier to store and handle, too.

PAPEC HAMMER MILLS HAVE . . .

- 2 screens instead of the usual one for more thorough grinding
- more screen area and larger grinding cylinder for extra capacity
- positive feed delivery takes less power
- grind finer with coarser screens

For better, faster grinding and more mill for your money, choose Papec. They are GUARANTEED to outgrind *any* other mill in the same power class. For information, see your Papec dealer or send name on margin of ad.

Papec Machine Company, Shortsville, New York.

PAPEC

HAMMER MILLS
FORAGE HARVESTERS
CROP BLOWERS
ENSILAGE CUTTERS
HAY CHOPPER-SILO FILLERS
FEED MIXERS

Farm's Books

Animal Breeding (5th Edition), *by Laurence M. Winters. John Wiley & Sons, Inc., New York, $5.75.*

Those seeking a practical book on genetics and animal breeding will find Professor Winters' new edition a handy item. As the study of algebra presupposes a knowledge of fundamental mathematics, so any work on animal breeding must necessarily assume that the reader has some knowledge of biology and genetics. This book makes such an assumption, but the author has been wise enough to begin with a review of the fundamentals and includes a generous glossary, for those of us who need a brush up on fundamentals before we get to the practical discussion of breeding problems. Many of the chapters have been completely rewritten to incorporate the latest findings in genetic research.

Principles of General Ecology, *by Angus M. Woodbury, The Blakiston Company, New York, $6.00.*

The title of this book is so forbidding that only a student with an assignment or a book reviewer would voluntarily open it and start reading. From the very first page, however, the contents are so fascinating that one is reluctant to set it aside for any reason. In the first place, ecology is the study of living organisms, both plant and animal, and their relationship to their environment—that is their relationship to the land, the soil, the sea, the air, the weather, and to each other. With such a vast field to cover, Dr. Woodbury shows a fine sense of organization and an amazingly broad knowledge. His chapters on the origin of the earth and the beginning of life, on the development of the soil and the adaptations of plants and animals to their environment are like refresher courses in the basic sciences. Though agriculture and the function of the farmer are not specifically covered in this book, the broad implications of the work are as fundamental to agriculture as is the sciences of genetics. As a matter of fact, genetics and ecology might be considered two sides of a single coin: genetics being the study of the laws of inheritance which permit or limit the physical adaptation of living things to their environment while ecology studies the environment and the pressures it exerts upon the living entity which cause it to adapt and which the plant or animal, in turn, exercises upon the environment.

Old Orchard Farm, by Hugh Orchard, Iowa State College Press, Ames, Iowa, $2.50.

"Open that book to any page and start reading, and I'll give you odds that you won't be able to put it down," Marshall Townsend, Manager of the Iowa State

(*Continued on page* 121)

milk per acre per dollar cost per man-hour depends on milk per cow

It takes three dimensions to measure dairy profits today . . . as production costs and milk prices adjust to new levels. Today, more than ever, it is the producing efficiency of each cow in the herd which translates into profit the efficiency of your per acre production and man-hours of labor.

Milk per acre is the measure of your ability to step up feed output from your farm. New heavy-yielding legumes and forages are a way to boost milk yield, with minimum feed bills for protein and grain.

Milk per man measures the efficiency with which you do your chores . . . the hours you work . . . the LABOR-SAVING machines you employ to help you care for cows.

Milk per cow, however, is closely linked with your entire milk-making operation. A high-producing, *big-capacity* cow is herself good insurance that heavier tonnages of feed and hours of labor will be used to best advantage. She makes certain your land, your time (and the time of your machines and hired men) will produce the most for the least.

Registered Holsteins are the greatest of milk producers. They produce more MILK per ACRE, more MILK per MAN, and more MILK per COW than any breed the world has known!

Registered HOLSTEINS *Breed of the Times*

THE HOLSTEIN-FRIESIAN ASSOCIATION of AMERICA

BRATTLEBORO, VERMONT

EXCLUSIVE TRAILING HUSKING BED of the No. 20 Mounted Picker takes weight off tractor. Biggest husking bed in NEW IDEA history. 10 husking rolls, each over 40" long with individual presser wheels put the cleanest corn you've ever seen into your wagon. With a No. 20 you are free to switch tractors. This means wider choice in tractor buying, better trade-in, higher resale value. Drive into snapping unit, attach 4 bolts, (no hoists needed), back up, hitch to husking unit; connect husking unit power shaft and go.

New Idea harvests your

WINNER OF MORE CONTESTS than any other . . . No. 7 one-row pull-type picker. Picks clean — 8 to 12 acres a day. Rigid box frame keeps parts in alignment for long life. Easily adjusted snapping rolls. Floating points and triple gathering chains funnel in tangled and down stalks. 2-row model handles 12 to 18 acres a day.

HUSKING BED on both pull-type pickers has extra long rolls, individual presser wheels and oversize fan. Thick or thin, damp or dry ears are husked *clean;* husks and loose trash are blown into the bite of the rolls, and the shelled corn saver hoards the few loose kernels, putting them into the wagon.

SNAPPING UNITS ARE EASY TO WATCH and control hydraulically from tractor seat. True-tracking, wide clearance caster wheels plus wagon hitch under husking bed let this compact rig turn in the same radius as tractor. Wagon elevator clutch, ear deflector and clearances between snapping rolls are all easily controlled from the tractor seat.

ALL-PURPOSE ELEVATOR with bridge-type trussing, box-crimped sides, stays in alignment. 17½" trough. 26′ to over 50′ lengths. 4′, 8′, and 10′ sections permit 2′ variations. Double chain (No. 55 or 62) rides on wood strips. PTO, gas engine or electric drive. Easy to raise, move and store.

corn as if it were gold!

ONLY 5,082,000 FARMS TODAY . . . compared to 6,096,000 farms in 1940. Inefficient farmers lose out. Efficient farmers are building bigger and better farms, solid futures; and they demand efficient equipment. NEW IDEA has grown steadily through these years because NEW IDEA machines keep proving their worth to successful farmers.

You can measure in dollars the importance of getting *all* of your corn in the crib; husk-free, with minimum shelling. NEW IDEA corn pickers, wagon boxes and elevators harvest your corn the way you want . . . as profitably as possible.

And you can rely on these NEW IDEA machines to do their jobs — efficiently, economically — harvest after harvest, for more years. With NEW IDEA, you spread your equipment investment over extra years; you are free to change makes or models of tractors anytime; you get higher trade-in values.

Your NEW IDEA dealer can demonstrate the sound values built into this equipment. Stop in and convince yourself. Find out why more farmers own NEW IDEA pickers than any other make.

NEW IDEA

FARM EQUIPMENT COMPANY AVCO Distributing Corporation

Dept. 1334, Coldwater, Ohio

Please send free illustrated literature as checked:

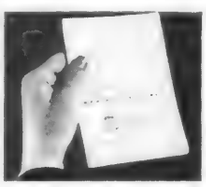
- ☐ No. 20 Mounted Picker
- ☐ One-Row Pull-Type Picker
- ☐ Two-Row Pull-Type Picker
- ☐ Elevators
- ☐ Stalk Shredder
- ☐ Wagon & Wagon Box

Name_____

Address_____

Your veterinarian spends endless hours in study

that your livestock may live...grow...produce



ACTH SYMPOSIUM
Squibb and a state school of veterinary medicine recently sponsored a symposium—attended by more than 700—on use of ACTH and Cortisone in treating ketosis of dairy cows. For further information, write.

Keeping abreast of veterinary progress is an important part of the job of your veterinarian.

He spends many hours reading veterinary journals...poring over latest research reports and clinical data.

He also devotes much valuable time to meetings of his veterinary associations, symposiums, and scientific gatherings—all to keep well informed of the many advances in veterinary science.

This constant study enables your veterinarian to bring you—on call—full benefit of latest techniques and drugs...to help you keep your animals healthy, vigorous and productive.

Aiding your veterinarian, Squibb provides many highly effective, reliable drugs—based on sound, authoritative research. Squibb also strives to serve the veterinary profession through the dissemination of scientific information and literature.

Your good management practices are, of course, basic in keeping your herds thrifty and profitable. But when modern veterinary skill is needed, you can depend on your veterinarian. And when modern veterinary drugs are prescribed, you can depend on Squibb.

SQUIBB
Veterinary Department
745 Fifth Avenue, New York 22, N. Y.

For prompt, accurate diagnosis, always consult your veterinarian.

SQUIBB—A NAME YOU CAN TRUST

Easy On . . . Easy Off
The 2-Row Corn Harvester mounts quickly on your WD-45, WD or WC Tractor. Driver sits safely above—in the clear—with panoramic vision.

Man — this is REALLY *husking!*

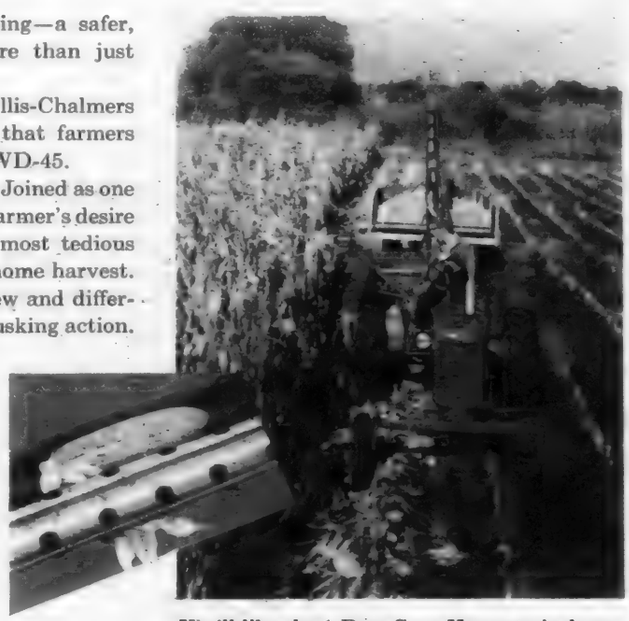
You're looking at the last word in corn husking—a safer, more satisfying harvest—something far more than just mechanical picking.

Beneath the low streamlining of the new Allis-Chalmers Corn Harvester lies the power of a tractor that farmers everywhere are talking about—the dynamic WD-45.

Picker and tractor were made for each other. Joined as one . . . they become the practical answer to every farmer's desire for a self-propelled corn picker. One of the most tedious tasks in farming is transformed into an easy home harvest.

Behind this remarkable performance is a new and different harvesting principle . . . *rubber-on-rubber* husking action. More husks off . . . less shelling!

Ask your dealer how little it costs to have your own Corn Harvester—be prepared for a pleasant surprise.



New Rubber-on-Rubber Husking
Rubber husking plugs press into matching holes in the opposite rubber roll. They catch stubborn husks . . . strip them faster with less shelling than steel-against-steel husking.

You'll like the 1-Row Corn Harvester's down-to-earth design. LOW and shielded for safety. LOW for streamlined picking. LOW in price for home ownership.

★ ★ **ALLIS-CHALMERS**
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

1-Row and 2-Row CORN HARVESTERS

Are Shows Slipping?

There's a growing suspicion that cattle shows have lost their practical value; let's examine these charges and the suggested remedies

By Charles R. Koch

THUMB THROUGH the premium list of any of the big stock shows and inevitably you'll find a statement of purpose: "The primary object of this exposition is to encourage the breeding and feeding of improved breeds of livestock for well-defined, practical purposes."

Some commercial cattlemen, farmers and ranchers alike, have a feeling that the shows have lost sight of those *well-defined, practical purposes;* that instead of being the show windows of agriculture they have become mouthpieces for the breed associations, and jackpots for the enrichment of a handful of professional operators.

This is strong language; many men on the range and in the feed lot are using stronger language, not against cattle shows as such, but against some of their shortcomings. These men want to bring the shows and the breed associations back to their real job, the improvement of the breed and the efficient production of beef.

There is no denying the tremendous improvement in beef cattle in the past 50 years—an improvement for which the shows can take a large measure of credit —yet the suspicion is general that not only has this improvement come to a halt, but that the ball is being advanced backwards. To support this, critics point to the prevalence of dwarfism, declining weaning weights, and reduced daily gains on feed.

What They Say

Breeders, breed association executives, packers, cattlemen, and show managers will, off the record, cry on your shoulder about the abuses of the show ring. Their desire of anonymity only points up their bitterness. Their opinions are set down as specific charges against the shows:

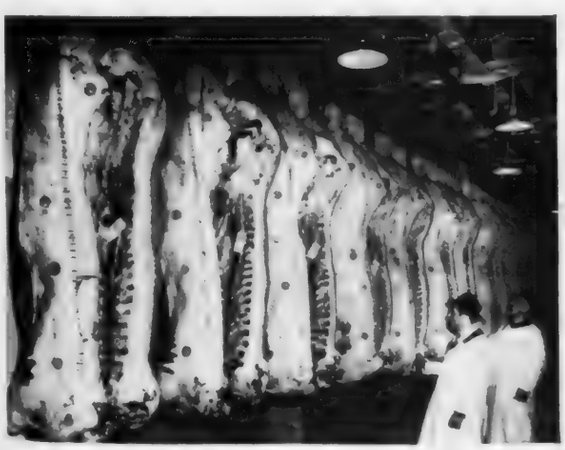
(1) Fat cattle classes are hullabaloo, and little more.

One of the country's top association men and a vigorous defender of the shows says frankly, "The breed would be much better off if we could eliminate fat cattle classes and stop fitting so highly. There is no farm profit in that kind of feeding at all. The steer game has become so professional that exhibitors are simply shooting at a pot of gold. But don't blame the shows and associations for this. It's what the public demands. As long as we have All-Americans in football, we'll have Grand Champions in steer shows." This, he admits, doesn't exactly help to improve the breed.

You won't find complete agreement on how the fat classes help or harm the commercial feeder. One prominent breed official says: "We want over-done cattle in the show ring and we want to breed the kind of cattle that can be over-done. Then it's up to the feeder to put the brakes on at the proper time."

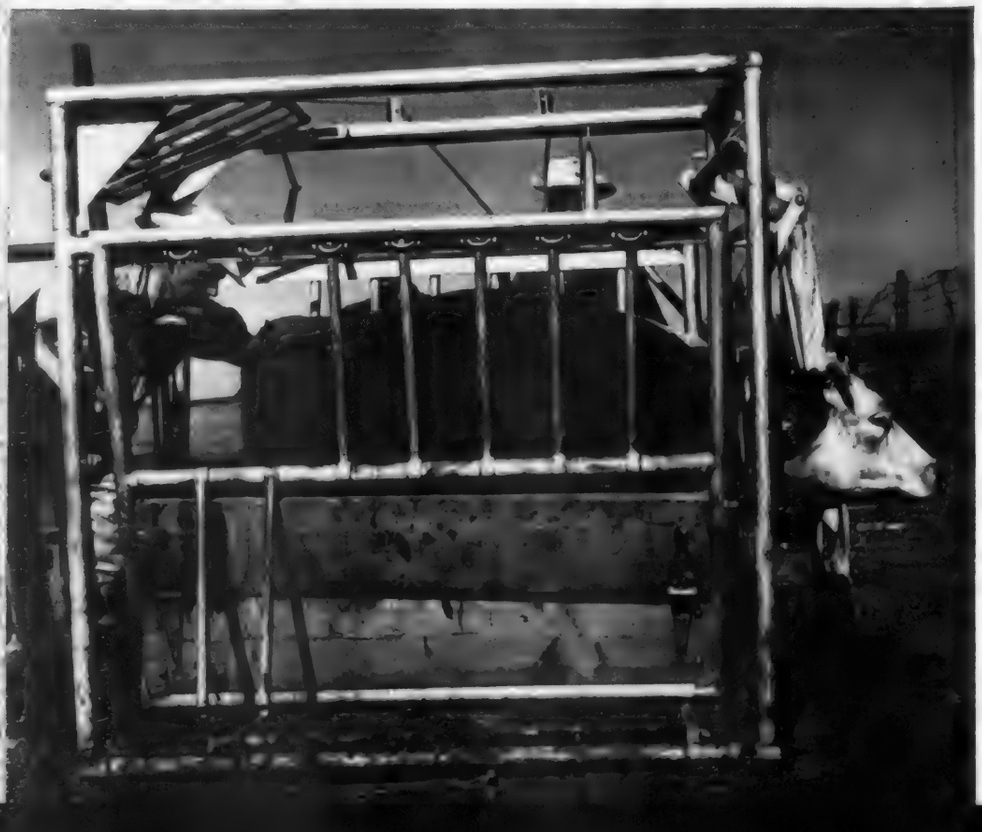
Another man, the head of the animal husbandry department at one of our State Universities, rebuts: "Over-fitting to the point where fat animals do not have a chance of winning in a carcass contest is certainly of no educational value to livestock producers. Our aim should be that all animals in fat slaughter classes should carry sufficient flesh to produce a carcass that would have a chance to win a carcass contest in the best competition. I have seen the carcasses of some International grand champions so over-done insofar as fat is concerned that they would not have a ghost of a chance competing in a good carcass contest. Beautiful to look at on foot, but a sad sight on the hooks."

Packers who have slaughtered grand champion fat steers and carload lots from every show in the country agree with this. Yet show rules invariably advise the judges "to object to the production of



HE WON the purple (left) but will he make a practical carcass? Thoughtful critics of the show ring insist that our judging standards have overemphasized type, have ignored breeding for efficient beef production. The packer's rail (above) is the final criterion of real beef, they argue, and the man who thinks he can select the best doing feeders (right) on the basis of appearance alone had better learn something about production records and progeny testing.

LIKE VICTORIAN LADIES show cattle have no legs. For the livestock photographer the bale of straw rates the top spot over his camera. For years showmen went to the extreme in selecting for the short legged, pony type individual. Today that type stands condemned, though short legs are still the vogue. (Below) Some breeders wait till calving time to find out how many of their cows conceived. Others call in the vet for an examination. The high fitting demanded by present show standards is responsible for a high degree of sterility in breeding stock, particularly in heifers and cows that have been on the circuit.



superfluous tallow, to the end that animals that win prizes on foot shall ultimately be proved first quality beef and a profitable type of beef-producing animal." Why do judges overlook this very plain injunction? One judge has said, "Fat and flesh make a man lose his sense of judgment. We go haywire over the rounded rump."

The sale of the grand champion steer, particularly when the animal has been shown by a youngster, has become the ballyhoo artist's dreamboat. The hotel, restaurant, or department store that buys this thousand pounds of beef on the hoof gets itself national publicity for proving that the champ is worth his weight in mink, and all over the land more farm boys and girls are lured from the pursuit of practical feeding and started in the game of showman's roulette.

(2) Carlot classes are tarred with the same brush as the fat classes.

Here, again, feeding is done with a "hang the expense" abandon that offers nothing in the way of education to the man who wants to learn how to feed more efficiently or how to select good doing cattle. Feeding out for a show becomes a test of special rather than practical skills and is seldom a guide to the feeding quality of the cattle. The top loads would usually wind up in the red but for their premiums. Those that are out of the running are definitely in the red.

The production of prime beef is considered uneconomical for the great bulk of commercial feeders and less than four per cent of the beef slaughtered in this country is carried to a prime grade. Yet fat carload lots and the standards of the grand champion are geared to the perfection of prime grade cattle.

Type and Conformation

(3) The show ring puts too much emphasis on type and conformation, not enough on hereditary characteristics.

Here's the real point of clash between critics of the shows and the defenders. Our present judging standards are dictated almost exclusively by eye appeal. Yet the sole purpose of beef cattle is to produce good beef and produce it efficiently. We think that short legs, short heads, short backs, make good cattle, but that is opinion, an opinion that may not necessarily stand up in the packer's cooler.

The manager of one of the biggest purebred cattle operations in the country tells of the time some years back when one of the most respected cattle judges on the circuit visited his place. "I asked him to pick what he thought was the top bull out of a group of four and he came up with the shortest legged thing in the bunch.

" 'Why did you pick that one?' I asked him. 'He's thin gutted; in my opinion he doesn't compare with the others.'

" 'Yes, but look at those short legs,' the judge said.

"So I asked him if there was any cor-

THIS MAY BE HOME on the range, but the show bull will find home was never like this. This Texas range is a downright unfriendly place for the sleek, fat bull fitted for the show ring. Ranchers must have seed stock that can thrive in rugged country.

relation between short legs and quality of beef.

"'I don't know,' he answered. 'You're the first man who has ever asked me that.'"

This same manager now seriously questions the longstanding breeder preference for the classic head. Recent studies at Colorado A. and M. College seem to give him good grounds for his attitude. There it was found that steers with the most short, wide heads of a bunch on test were higher in weaning weight and in grade, both as feeders and yearlings, but they were lower in daily gain, feed efficiency, and slaughter weight.

Twenty-five years of research in progeny testing at the Miles City Range Live Stock Experiment Station has proved that the ability to make rapid gains is an inherited charactertistic in beef cattle. And it has also been found that selection for gaining ability alone will not improve fleshing characteristics, nor will selection for conformation alone improve gaining ability. Selection for each must be made independently, which means that striving solely for perfection in type is not enough.

So far as eye appeal is concerned, the research has shown that it is impossible to select fast gaining calves from their appearance at weaning, and that while grading just prior to slaughter serves as a fairly good estimate of the value of a carcass, it is a better estimate of the amount of fat in the carcass than of the amount of lean.

To accuse a rancher today of raising compressed or compact cattle is almost like calling him an obscene name. Yet until very recently, pony type animals were the darlings of the show ring. This is where insistence on type led cattlemen into real trouble. Those who have studied the dwarfism problem carefully have time and again come to the conclusion that there is a definite connection between the pony type and the carriers of dwarfism. The pony type is out; but will this tendency to adopt false goals of conformation lead us into further mistakes just as harmful as dwarfism?

(4) The show ring furnishes criteria for the selection of breeding stock. Is this criteria desirable?

A purebred breeder, former president of one of the breed associations, and, incidentally, a great stickler for type, was asked recently how much he depended on the shows in buying his bulls. "Not much," was his reply. "I don't buy bulls out of shows. I learned that lesson a long

(*Continued on page* 126)

Early Weaning of Pigs

Pigs weaned on dry feed at seven days weighing five pounds are fast-growing, money-makers

A WEEK-OLD PIG of five to seven pounds grows faster on dry pre-starter feed than he does on his mother's milk. Ed Lee (right) tosses an eater pig in with a newly weaned litter. This experienced eater will teach the others the way to go after dry feeds.

THE EARLIER you can get a pig away from its mother, the better chance it has to grow up to be a hog. The sow produces more offspring than most farm animals—she has to because so few of them survive her mothering. She steps on them, rolls on them, flops on them, passes on her diseases to them, and starves them. All told, she only raises about two-thirds of her brood even under good farm conditions. For the past few years, man, by weaning the pigs early, has been trying to take over part of the sow's job in an effort to rescue the pigs from her ponderous, slipshod motherhood.

There are other important advantages of an early weaning program besides saving the pigs from crushing, crippling, and diseases passed on from their mother. Experience has shown that the younger the pig the better he will respond to growth stimulants such as B_{12} and antibiotics, and the more thrifty he will be with his feed—in the first two or three weeks he will gain at the rate of a pound of gain for as little as one and a quarter pounds of feed. Then, too, with plenty of feed for all, and enough antibiotic to overcome runtiness, the pigs gain faster as well as more economically and are more uniform.

The sows can be re-bred or sold sooner when their pigs are taken away from them early—the re-breeding program makes it possible to get three litters in 13 or 14 months rather than two litters a year. The sow loses less weight during the short lactation period and consumes about half as much feed as she will demand if she has to feed the pigs. Getting the sow away from the pigs early releases space for the pigs and reduces the special care that must be given her. Under the latest systems of fast weaning, there is actually less labor involved in caring for the sow and pigs.

Labor and cost were the bugaboos of the first try at early weaning. This effort consisted in taking the pigs off the sow at two or three days and putting them on artificial sow's milk. The first experimenters tried feeding the pigs from a battery of baby bottles which kept them busier than a nurse in a Turkish harem. They then switched the pigs to special cages with built-in feeder troughs and finally they simplified it to feeding from poultry watering founts. Any way they tried it, mixing the formula and feeding the milk was a lot of work. Some farmers did wonders with the milk, but this program required first rate management and it *was* expensive.

The newest effort at early weaning is to take the pigs from the sow at five days to two weeks and put them on dry feed. During their stay with the sow, since it is a short one, she is kept in a farrowing crate to minimize the danger of crushing. The pigs are first fed a pre-starter feed which is a very nutritious dry milk replacer, then put on a starter feed and, finally, onto a growing ration.

Several scientists here and in Canada have worked on this problem. Dr. Herbert Luther, the nervous, hard-driving head of the Pfizer animal research laboratories, who is described by his friends as a man with ulcers on ulcers, has directed a great deal of work on this problem. "We now know enough about the nutritional needs of the pig," he said, "to feed it from the moment it is born right on through. It is a matter of balancing cost and labor against results. For the first two days we would have to feed them an artificial colostrum similar to the calf scours preventive formulated by Karl Link. The cost would be high and as for the labor at this time," he paused and drew the sign for infinity, "it would be more than any person would care to put into it. Artificial sow's milk could be used for the next three days at a lower cost and less labor, but it would still be too expensive and require too much labor to be practical. At five days to a week, we can put the pigs on a dry pre-starter, and then the labor costs really drop and so does the cost of the feed."

Damon Catron, of Iowa State College, who has been working on this particular problem for years, has developed a feed formula and a management program for early weaning. With his teacher's flair for presenting facts so that they stick in the mind, Dr. Catron has named his new feed Pre-starter 75. The 75 means that pigs can be weaned at 7 days weighing a minimum of 5 pounds. "I was looking at some figures the other day," Dr. Catron said, "and noticed that back in 1924 we managed to save 5.2 pigs and in 1953 we are saving 6.9. With the heavy emphasis on sanitation and saving pigs during the past thirty years, this hardly seems like progress to me. I think that through nutrition we may have a powerful new weapon to fight pig losses. There are still plenty of gaps in our knowledge about nutrition, but at least we've reached the point where we know more about it than the pig does. During the first two weeks of life the pig's nutritional requirements are very high and we satisfy them with sow's milk and with Pre-starter 75, which is a highly fortified 24 per cent protein feed. From two weeks, when the pig is around eight pounds, to five weeks, the pig's digestive system can handle a little rougher feed and we give them an 18 per cent protein starter feed—pelleted to cut down on wastage. At five weeks the pig will weigh around 25 pounds and be ready for grower feed, which is 16 per cent protein and is bulkier and contains some raw starches which the pig can now handle. We keep them on this growing ration until eight weeks — the old weaning time — when they should be weighing around 50 pounds and are ready to go onto their final growing and finishing ration."

Catron's formula for the Iowa State College Pre-starter 75 is somewhat complex and requires careful blending. It should, therefore, be mixed by a reliable feed manufacturer. Here is the ration:

Ingredient	Pounds
Dextrose (Corn Sugar)	15.0
Sugar (Cane or Beet)	5.0
Toasted Corn Flakes	8.55
Dried Skimmilk (Low heat, spray dried)	40.0
Dried Whey (Low Lactose)	2.5
50% Solvent Soybean Oil Meal	12.1
60% Fish Meal (Good quality)	2.5
Lard (Stabilized)	5.0
Lecithin	1.0
Dried Brewers Yeast	1.0
Corn Steep Water	1.0
Dried Beet Pulp	2.0
Vitamin-Antibiotic Premix	2.0
Dicalcium Phosphate	1.2
Calcium Carbonate	0.5
Iodized Salt	0.5
Trace Minerals (Swine)	0.15
	100 pounds

One hundred pounds of the Vitamin-Antibiotic Premix mentioned above consists of:

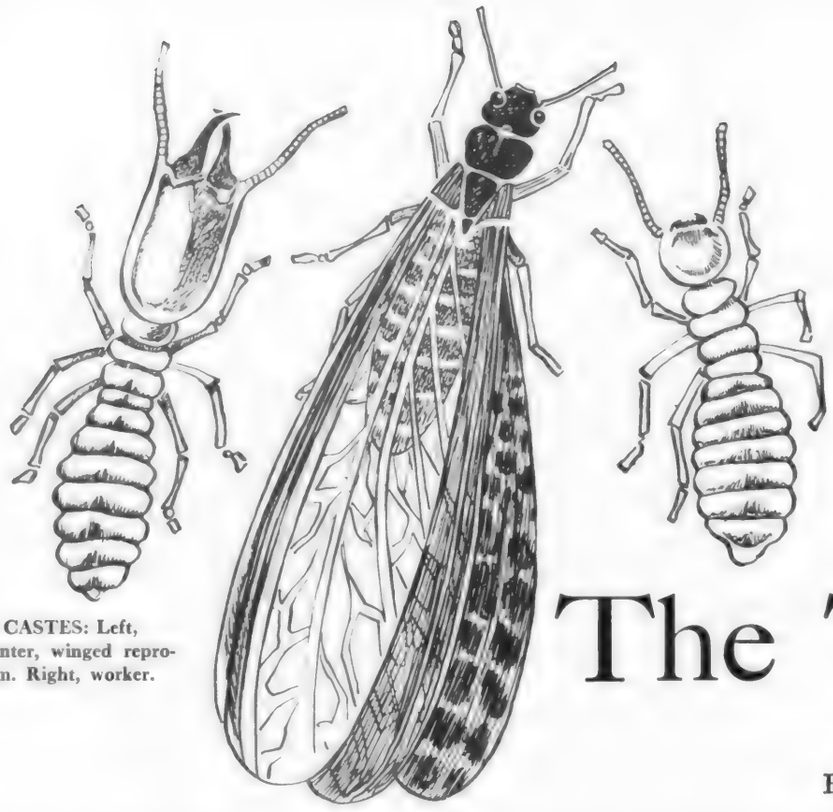
Vitamin A (20,000 I. U./gram)	2500.00 grams
Vitamin D_2 (142-F Irradiated Yeast)	35.20 grams
Riboflavin	1.60 grams
Calcium Pantothenate	9.50 grams
Niacin	113.66 grams
Choline Chloride (100%)	163.50 grams
Vitamin B_{12} (20mg./lb.)	5.00 pounds
3% Folic Acid Supplement	1500.00 grams
Alpha Tocopherol Acetate	50.00 grams
Ascorbic Acid	1500.00 grams
Thiamin HCL	10.00 grams
Pyridoxine	10.00 grams
Para-Amino-Benzoic Acid	40.00 grams
Menadione	5.00 grams
Aureomycin	200.00 grams
Terramycin	200.00 grams
Bacitracin	75.00 grams
Procaine Penicillin	25.00 grams
Solvent Soybean Oil Meal	80.10 pounds
	100 pounds

"These ingredients were not just flung together without thought," Dr. Catron said, "and they shouldn't be given a fast and loose treatment by a feed mixer. We were thinking of that baby pig's digestive tract and what it can handle, as well as the pig's nutritional needs, when we put the little fellow out into the world on its own. We put the dextrose in to give the pigs some fast energy and the cane sugar to back it up a little later. The toasted corn flakes provide some carbohydrates in a form the pig can use. The lard gives us fat in a form that is natural to the pig and the dried beet pulp is about the blandest form of roughage we could find.

"As we learn more about the needs of the pig and the factors supplied by the feeds, we will probably change this formula. We have some unknown growth factors in whey and fish meal, for example. When these growth factors are isolated we might find that we could put in the growth factor as a supplement and eliminate a costly ingredient. But until experiment and testing have shown the way, the formula shouldn't be altered. Each mill will sets its own price on the feed depending on local conditions; the price should run from 15 to 20 cents a pound.

"This early weaning program isn't for just any farmer," Catron concluded. "It wouldn't be honest to recommend it without warning that it takes better equipment and better management than the old-fashioned way. Some may feel that this is a disadvantage; I think it will result in better farmers specializing in swine. I think this whole program will eventually bring about specialists who will produce pigs on a year around basis rather than on the present uneconomical two-litter system that brings about two peak periods of selling which depress prices and cause the packer to put on extra help and later lay them off. Where conditions are *excellent,* and

(*Continued on page* 113)



TERMITE CASTES: Left, soldier. Center, winged reproductive form. Right, worker.

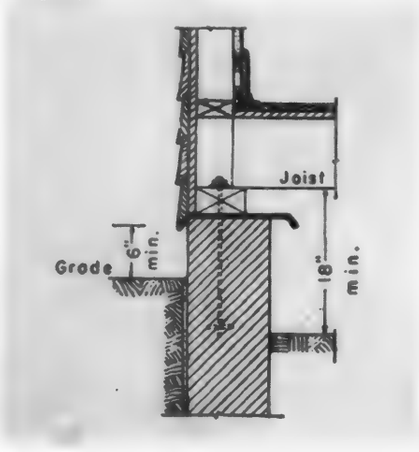
The Termite

By Bob Adams

THE TERMITE is a true subversive; he bores from within to damage us, striking at the very root of our happiness, our homes. He shuns the light of day, and works quietly in the dark. Often we do not know of his presence until the floors sag, the sills give way, and we fall through the basement steps. Then when he has destroyed our homes, he follows us to the grave and makes a meal off our coffins.

The chief food of the termite is wood—a fallen log in the forest—or your door sill; and he may devour the linoleum off your kitchen floor and the corks out of your wine bottles. He can literally eat you out of house and home.

Termites were here when the white man came, and they are still here. When we began to build wooden houses the termites moved in from the forests to our dwellings. We have resisted this invasion, but our counter-attacks have been so feeble it is probable we are losing the battle—termites are on the increase.



TERMITE SHIELDS should be made of non-corrosive metal, welded and extended beyond foundation both inside and outside, and bent at a 45-degree angle.

Besides the termite with which we are familiar in most parts of the United States, commonly called the subterranean termite, there are two other varieties, the dry wood termite and the damp wood termite. These are found mainly along a strip of the southern states bordering on the Atlantic, the Gulf, and Mexico, and are not a serious threat elsewhere.

The subterranean termite, no more than a quarter-inch long, has an amazing ability to survive and increase. They work long hours, they help one another in their colonies, and they take every advantage of our mistakes in building. Termites apparently cannot be exterminated, and indeed it may not be wise to do so. They fill a definite niche in nature's balance in that they help return forest litter to the soil—but they must be controlled. And to control them we must know how they live and work.

Profile of a Termite

Termites are often mistaken for ants, and vice versa. Close inspection will reveal their only similarity is their size and the fact that both have wings. An ant has a thread-like waist which joins the abdomen to the remainder of his body. The termite does not have a waist line and his head, thorax and abdomen all appear in one segment. Both termites and ants have four wings, arranged in pairs. The wings of the termites are equal in size and about twice the length of his body; one pair of wings on the ant is shorter than the other, and the longer pair is only slightly longer than the body. The wings of the termite have indistinct veins, while those of the ant have prominent veins. The termite is related to the cockroach and not to the ant.

The Life and Times of a Termite

Termites live in colonies in underground nests. The nests may be a few feet or many feet underground. In their search for water, which they must have, they may burrow as far down as the water table. The nests are a maze of tunnels and pockets. In the center of the colony is the queen, who spews out eggs in unbelievable numbers. From these eggs hatch three types of termites—workers, soldiers, and reproductives. The workers are creamy white, wingless and blind, and they are not sexually functional. They build the tunnels, maintain the nest, and feed the colony. The soldiers are white, also wingless and sexless. They protect the colony against invaders, chiefly ants, the mortal enemies of termites. (A soldier can be distinguished from the worker by a larger head and a set of protruding pincers, used for offense and defense.) The reproductives are the sires of the colony and the females, from which future queens will be fashioned. They are black and have wings, the only termites we see above ground, for they swarm at certain periods of the year. When a queen dies or is incapacitated, one of the standby queens is fed and groomed and becomes the queen.

The same biological urge that stimulates birds to flight in the spring, the flowers to bloom, and the bullfrog to sound his mating call from the cattails causes the reproductives to swarm. This is the nuptial flight of the termites, their contribution to their society in the perpetuation of their species. Their brief and wobbly flight ends in a matter of a few feet from their place of emergence. After their short flight they kick off their wings with their hind legs, and crawl about, the males seeking out the females. There is pursuit, the males amorously following the female, stroking her with his antennae. After mating, they return to the soil and form new colonies. The fertilized females remain dormant mothers until a replacement is needed for the queen. Swarming is a brief burst of activity, often not longer than a few minutes.

The soft-bodied termite is equipped with a digestive system which is a wonder of nature. Protozoa in his intestines permit him to digest wood and other cellulose material. They do not tear their food like a dog, nor gnaw it like a beaver; they have saw-like teeth which break down the wood tissue as they move their jaws from side to side. They must have water at least once a day. Without water the termite perishes after a few days.

Termites are active all the year 'round, but in winter frost may drive them deep into the earth and curtail their activity. If their search for food carries them to the surface they build tubes to provide an avenue of operation in the dark, and to protect them against their enemies.

These tubes range from the thickness of a pencil to several inches in diameter. The workers, expert mud-pie makers, build the tubes from earth mixed with water. The tubes can often be seen on the outside of foundations extending from the earth, along a stone or concrete foundation, to a wooden part of the building. Sometimes, when there are no supporting walls or surfaces, the tubes are built upward into the air. If, in their travels or while feeding, contact is made with the open air or light, the opening is immediately sealed with mud. The termite wants nothing to do with the wide open spaces or light, regardless of how little of it there is. He must have darkness and dampness.

How to Find and Foil the Termites

It is impossible to list all the ways that termites can gain access to a home, so let's inspect an average house with a basement and poured concrete foundation walls. First we will note the location of any concrete porches or stoops. In many areas of the United States masonry construction adjacent to a foundation wall causes more termite trouble than any other phase of construction. Let's assume that you have a small unexcavated concrete porch on the front of the house. Armed with a bright flashlight we proceed to the basement just opposite this porch to examine the wood plate and ends of joists on top of the foundation wall. If you have a plastered basement ceiling it will be necessary to remove a strip of the ceiling, about four inches wide and the length of the porch. This exposes the structural timbers. If there are termites here we will see the shelter tubes, between the plate and the top of the wall, on the joists, in the sub-flooring, or at all these places. If the termites have been in the wood as long as two years, we will see small slits in the joists, running parallel to the grain. The length of the slits will depend upon the length of time they have been in the joists and the amount of damage done. These slits in the joists are rarely thicker than a knife blade and are sealed

(*Continued on page* 108)

TERMITES here did a variation of the Hindu rope trick, extending an aerial tube 15 inches from the ground to the joists of a sun parlor. The debris at the base shows unsuccessful attempts. A two-foot space between ground and joists would have prevented this intrusion.

We Can Stop Rabies

State-wide inoculation laws, ruthless extermination of infected wild animals, and public education can stamp out this dread scourge

THIS YEAR hundreds of cattle, sheep, pigs, dogs and cats, and scores of farmers and city people will die from rabies. But this need not happen. Death from rabies is a most horrible and needless end; needless, because for almost 70 years we have had the means of eliminating the disease entirely. Yet we go on tolerating it—a person is bitten by a rabid animal, the virus-laden saliva gets into the wound, and unless preventive treatment is taken, the victim dies in agony. There is no known cure for it; once the symptoms have developed—the victim is doomed.

In man the disease is called hydrophobia because the stricken person has a deadly fear of water. The throat is paralyzed and even the sight or sound of water will bring on devastating convulsions in the victim, who thirsts but cannot drink. Sometimes the disease is called ærophobia because a breath of air against the skin will cause a tortured spasm culminating in unconsciousness. The lives of many humans and animals are sacrificed each year because our laws are inadequate to carry out the recommendations of scientists. We could stop the disease by the inoculation of all dogs—they are the cause of 85 per cent of all cases—and by relentlessly trapping wild animal carriers wherever there is an outbreak. Though any warm-blooded animal, including bats, can spread rabies, the fox and cats which have gone wild are the worst offenders next to the dog.

In the middle ages men believed that the spirit of the mad dog entered the victim through the wound he had made. Pliny the Elder, the Roman philosopher, recommended eating the livers of mad dogs as a cure, while Galen proposed a compound of cray-fish eyes. It was believed that hydrophobia could be transmitted by the mere breath of the sufferer, and so great was the fear of the disease, victims were often strangled or smothered to prevent their passing on the madness. As late as 1810, the government of France

EXAMINATION of the brain is necessary to diagnose rabies. The severed, iced head (above) is sent to a state laboratory. A pole and noose (below) is the safest way to catch and hold a rabies suspect. The rabid dog (right) can infect livestock and spread the disease among wild life.

was petitioned to forbid the strangling, suffocating, bleeding to death, or in any other way killing individuals suffering from rabies, hydrophobia, or any other diseases causing fits, convulsions, furious and dangerous madness.

Today, many of us show little more reason than they did a thousand years ago. In opposing a city ordinance making it mandatory to vaccinate dogs against rabies, one Los Angeles zealot wrote, "I will buy a gun to be an Annie Oakley. You can't give my dog this poison. I'm not a Russian." Another group issued the statement, "There is no such thing as rabies. The so-called disease is not infectious but psychosomatic, confined to individual animals. Inoculations only spread rabies. God is opposed to the practice of inoculation." In their misguided concern for their pets, these people would elevate dogs to human status and subject man to the position of a beast.

The man who first successfully attacked the problem of the cause and prevention of rabies was Louis Pasteur, the great French scientist who had already done so much for humanity in his proof of the germ theory, his process for inhibiting bacteria formation which we know today as pasteurization, his cure for the silk worm disease which demonstrated the value of the scientific technique, his work on anthrax. In 1884 Pasteur began his studies of rabies, which were to show that the disease was caused by a virus which attacked the nervous system and was generally transmitted through the saliva of a rabid animal after it had bitten the victim. He also showed that rabies could be transmitted from one animal to another by inoculating them with tissue from the nervous system of the rabid animal. Finally came the great triumph. He discovered a means of immunizing dogs so that they would not get the disease and he discovered the means of preventing the disease in humans once they were bitten.

This treatment for rabies consists of 14 or 21 inoculations—the larger number is used when the bite is on the face or hands or is unusually severe—which are given as soon as it is determined that the animal which made the bite was rabid. The inoculant is made from brain tissue of a rabid animal. The first inoculation is made with tissue which has been dried for at least two weeks or inactivated chemically or with ultra-violet rays, to make it less virulent. Each succeeding inoculation uses brain tissue which has been inactivated to a lesser degree until tissue capable of causing rabies in a laboratory animal is being injected into the patient. In this way the patient builds up immunity to the disease during the very time the virus from the rabid animal's saliva is going through its incubation period.

Even today, doctors do not know exactly why this treatment works, since most inoculations increase the susceptibility to a disease before they bring about immunity. Pasteur, himself, had a theory about such a cure; he had tried it out successfully on dogs and was planning to inoculate himself with the deadly virus and then attempt his new cure. While he was perfecting his plans, a distraught French mother brought her nine-year-old son, Joseph Meister, to Pasteur. Two days before, a dog had attacked Joseph, thrown him to the ground, and bitten the child 14 times before a workman drove him away. The boy's arms and legs had been deeply gashed and covered with disease-carrying saliva.

On Monday, July 6, 1885, when Joseph was brought to Pasteur's laboratory, the scientist was faced with one of the most terrible decisions of his life. There was the slim chance that the boy might not get the disease; only about 30 per cent of the victims of mad dogs actually came down with hydrophobia, but not many were so badly bitten as Joseph. On the other hand, inoculation with progressively virulent material

(*Continued on page* 76)

THIS IS Mrs. Craver and her daughter. The camera-shy goat is Karla Del-Norte, A.R. 918, and the Jersey is Lupe Del-Norte, whose dam made 10,050 lbs. of milk in 305 days. Below is Baronet Theda's Basil No. 509120, the Del-Norte herd sire who was the top DHIA proven Jersey bull for the year 1953. On the opposite page Aunt Lou Roberts is shown feeding goat milk to the Del-Norte French Alpine kids; they are her special charges.

The WOMEN

This Arkansas mother and daughter have proved that women can run a farm, manage two dairy herds, and set high production records at the same time

By James Rose

"THESE women just seem to understand how to get animals to give more milk," said Ed Moore, the Benton County, Arkansas, Assistant County Agent, as he swung open the gate to let the heifers into the tall brome and alfalfa pasture. He was talking about the Del-Norte herds of Jersey cows and French Alpine goats. The women were: Mrs. F. N. Craver, her daughter, Mrs. L. C. Caceres, and Mrs. Craver's sister, Aunt Lou Roberts. These three women had taken over a 90-acre, run down Arkansas farm in 1948. They had used a three-way farm program of goats, cows (and the abundant manure from both herds), along with a sound soil conservation program, to improve the farm to such a degree that in 1953 drought-plagued Texans were knocking at their door and offering as much as $50,000 for it as a haven for their hungry cattle.

When Ed Moore first came to Benton County in 1951, his doubts about the ability of these determined Texas women were changed to admiration after he saw how they had changed their 90 acres, just east of Bentonville. It was with a sigh of relief, too, that he realized that they knew what it took to build a dairy herd, that the basic ingredients of dairying—constant attention to the animal's welfare, with a sharp eye for details — were already second nature for all three of them. Ed had seen his share of city people moving to this part of Arkansas for their health and to get in on the land boom. He didn't fancy the job of starting three women from scratch on the ways and means of farming and dairying.

The neighbors' first big shock had come when the Craver livestock truck arrived from El Paso, Texas, in November, 1948. The sign on the outside said, "Del-Norte Herd." When the chute was put up to the back of the truck, it was milk goats, not milk cows, that picked their way down the cleats. Breeders in the milk goat world knew that Mrs. Craver was one of the top women breeders (or men, too, for that matter) of dairy goats in the country. As Ed Moore looks back on the growth of the Del- Norte Herd of Jerseys, he is quick to say that the experiences Mrs. Craver had with her breeding of the highest producing dairy goats in the country were the stepping stones upon which her daughter was able to start out and do a great job with Jerseys.

In 1929 when the Cravers were living near El Paso, their daughter became ill. The doctor advised them to give her goat milk. They did, and it helped. So, the Cravers decided to produce their own goat milk instead of buying it. Mrs. Craver was the most interested in the goats and she gradually built up a good herd of dairy goats made up of several breeds. She acquired better animals as she went along and in the process the family decided that they preferred the milk of the French Alpine breed. The French Alpines, native to the Alpine Range of France and Switzerland, are the most popular in France where large herds are kept to supply milk for cheese-making. The first importations of French Alpines into the United States were made in 1922 by Dr. C. P. DeLangle, who had been restored to health in California by goat milk. Dr. DeLangle was so grateful that he arranged with a French scientist, Mr. Joseph Crepin, to ship 3 bucks and 18 does to this country. With these animals as a foundation herd, Dr. DeLangle hoped to improve the bloodlines of American milk goats.

Searching out the best French Alpine stock in the country, Mrs. Craver made a trip to California in 1932. Here she visited the herd of Mrs. Mary Rock in Santa Barbara. From her she bought a granddaughter of Le Poilu No. 15616, one of the fine bucks that Dr. DeLangle had imported. The young doe, Little Hills Pierrette Lady Penelope No. 47339, became one of the foundation does in the Del-Norte French Alpine Herd. In 1941 at the age of 7 years, and on 305-day official test, she gave 4,632.3 lbs of milk and 132.7 lbs. of butterfat. Her high day was 23.1 lbs.

Mrs. Craver's keen eye and instinct for the selection of does that had promise of great milk-producing ability enabled her to thread the tough and sometimes baffling course of mating the right animals. In 1947 a doe named Yvonne Del-Norte No. A 81191 freshened for the second time. She had been sired by

THE only time of the day that the Del-Norte Jerseys are in the barn is at milking time. They come in as their names are called.

THE milk is stirred three or four times during the cooling to keep a hot core from forming and running up the bacteria count.

ED MOORE, the Assistant County Agent, stops in to check the production records about once a week. (Below) Mrs. Craver milks Karla Del-Norte; she produced 9.8 lbs. of milk at this morning milking.

Pierre Del-Norte, a son of the California doe, Lady Penelope. During June, the third month of her Class A Advanced Registry Test, supervised by the state cow testers, Yvonne produced 626.5 lbs. of milk with 21.7 lbs. of butterfat, thereby putting a lot of cows of the testing ring in the shade. She completed her 305-day test with 4,552.2 lbs. of milk and 171.13 lbs. of butterfat to her credit. She continued her test for the year, 365 days, in which she produced 5,094.4 lbs. of milk and 195.5 lbs. of butterfat, breaking all previous records for all breeds of milk goats.

Goats That Milk Like Cows

This kind of success comes only once in a lifetime to most breeders, but by continuing to breed French Alpines that consistently hit the 3,000 to 4,000 lbs. of milk class in 305 days, Mrs. Craver has proved that it was no accident. The sire of Yvonne, Pierre Del-Norte No. 64914, proved to be one of the great prepotent bucks of all time and his more than 50 Advanced Registry daughters and 50 sons have been purchased by ranches and governments of Mexico, Cuba, and South America, as well as by many breeders in the States, at an average price of $150 each, which is in the top bracket for kids.

Mrs. Craver's breeding program with the goats follows the same pattern as that used by good breeders of dairy cattle, beef cattle, hogs, horses, or hamsters. To break it down into four parts, it would go something like this: (1) She searched until she found several outstanding foundation does. Once she had these animals she intensified their good points in their offspring by line breeding and close breeding; (2) She culled ruthlessly. Animals that did not measure up to her standards of health, type, and production were not sold nor did they carry the Del-Norte suffix; (3) Her bucks, of her own breeding, and carrying the intensified Del-Norte bloodlines, were tested for prepotency. From the production records of each buck's daughters, showing an increase of production over their dams, from their size and bone structure, from their good udders, there was no problem in selecting the prepotent bucks, the ones who could pass their good qualities along to their daughters; (4) Advanced Registry testing for the past 20 years under the supervision of official testers and using the rules of the American Milk Goat Record Association, Elyria, Ohio, has enabled Mrs. Craver to list her animals along with other officially tested goats all over the country and give them national recognition because of the uniform and accurate testing procedures.

The milking does of the Del-Norte herd are kept in an airy one-and-a-half story barn, usually two to a stall. Outside is a common exercise yard onto which all of the stalls open. The stalls in the barn are approximately 10 by 18 feet and the exercise yard is about one acre in size. The goats are locked up at night and kept off the pasture to avoid parasite infection. After the sun has burned the dew off the grass in the morning the chances of taking the worm larvae into the digestive tract are less. When the stems and blades of grass are moist with dew, the worms like to crawl up the grass. They crawl back down as the moisture evaporates.

To produce the tremendous amounts of milk, in proportion to body weight, these animals do not have to be fed large quantities of grain. The emphasis is put on a balanced diet of grain and top-quality alfalfa hay. At milking time the does receive a coffee can of grain, which is a pound. The mixture is:

400 lbs. of rolled barley
400 lbs. of whole oats
100 lbs. of yellow cracked corn
100 lbs. of beet pulp
100 lbs. of molasses
75 lbs. of cotton seed meal
10 lbs. of Moor-Mans mineral
10 lbs. of salt
5 lbs. ground limestone

Beautiful green alfalfa is kept before the does at all times. It is not raised on the farm but is trucked in from a hundred miles away, from the mineral-rich soil around Muskogee, Oklahoma. Sid Garrett raises, bales, and delivers off of 400 acres of Arkansas River Valley land which produces over 5 tons to the acre. The hay sells for $40 a ton, plus delivery costs.

The kids get milk, fresh and warm, from the milking does. Mrs. Craver is a goat breeder and is in the business to sell stock rather than milk, so the goat milk is fed to the young animals. Most does have twins or triplets; by the time the kids are two months old they have developed husky appetites and can consume a quart of milk at a feeding, and that is three times a day. Kids get the goat milk for 5 to 8 months, and by this time they are usually sold. When the kids are two weeks old, they are given their first taste of Purina Startena. They are fed this well-balanced feed with its vitamin and antibiotic supplement for 6 months.

All the kids are the special charges of Aunt Lou Roberts who gives them the affection and care that makes any animal blossom. With milk goats this is especially important, for the doe that is fussed over will respond by giving more milk. Good sanitation is most necessary in the first year of any animal's life, and kids are no exception. The feeding pans and racks are washed after each milk feeding by Aunt Lou. She uses a detergent and limes the ground lightly underneath racks to keep down the flies.

The first treatment for parasites, the worms of all kinds which the goatkeeper, like the sheepman, must keep under control, takes place when the kids are one month old. Approximately one ounce of phenothiazine is stirred into each pan of milk. This will control the most pesky varieties of worms, such as stomach worms

THE WOMEN can cook too! These Saturday supper specialties are: hot bacon dressing to be poured over new lettuce and chopped onions; cream gravy, made in the chicken frying skillet; and the fried chicken. Aunt Lou finishes off the gravy, just right for rolling over hot biscuits; Mrs. Craver has just taken the chicken from the browning oven.

and nodular worms. "They'll drink it once," says Aunt Lou, "but the next time you have to use a regular drenching syringe. Then you dissolve the phenothiazine in water."

In this atmosphere of breeding milk animals, of devotion to their welfare, of round-the-clock thinking and planning for them, Mrs. Craver's daughter "Sis" started her Jersey herd in 1948. The first Jerseys that Sis bought were the ones that "came with the place." The people who had owned the farm had started with good ones of the Sybil and Raleigh strains. They had moved from Iowa to Texas and then to Arkansas; the cows had lost production and weight with each jump. The prize that came in the herd was "old Blackie." She is 17 years old now and has produced some outstanding milkers for the herd.

Just to start things off, there was rain for three weeks that first month in 1948. The buildings leaked; cows and Cravers waded around in a sea of mud. Sis recalls that it cost $1,500 to feed those cows through the first winter and they produced only a single 10-gallon can of milk a day.

All year the women had been studying "The Jersey Journal" and the pedigrees of young bulls that were for sale. There was no herd sire that was too good, if they could get the owner to sell him, and they could afford him. Late in December they bought the young bull (he was born January 8, 1948), Baronet Theda's Basil No. 509120, from J. J. Harris, the owner of Pedigree Jersey Farms at Pelham, Georgia. His sire's ability to pass on his good qualities was an important factor in the decision. His dam was a good producer. His grandsire was Brampton Basileus. He came from closely-bred and proven bloodlines.

The New Bull

Basil was welcomed to the Del-Norte Farm and treated regally from the start. Today he is as gentle and friendly as a Jersey bull can be, and no trouble for Sis to handle with only his nose ring.

Four years of routine dairying followed for Sis; days and months in which wash-up, milking, feeding, milking, wash-up, followed one another in an endless procession. Every day she does a man's work. Part of the time she has had a tenant farmer to milk and farm with her. There have been problems with the Board of Health; double swinging doors had to be installed to separate the milking parlor from the milk house. There was bad luck, too. The whole center part of the house burned and the family lived under a tarpaulin for most of the winter. The old milking machine gave up the ghost and a new DeLaval was installed.

Three years of drought made feed and pasture scarce and expensive in Arkansas, where the natives had always boasted of the state's unfailing pastures. As a protection against more dry years, a 100-ton trench silo was built in 1951 and filled with chopped sorgo and corn, in a half-and-half mixture. This was grown on rented land nearby; it cost $2.25 a ton to lay the silage in the trench. It was covered with tar paper and sawdust, and there was practically no spoilage.

Basil's first daughters were freshening in 1952, a dry and unpromising year. There had been no selection from a big herd of

(*Continued on page* 99)

Will the International Wheat

EARLY IN May the combines started rolling through the wheat fields of Texas; through the hot summer they sent up clouds of chaff and dust from the plains of Kansas and Nebraska; and they were still going in autumn, clanking their way through the fields of Montana and North Dakota. Each time the dusty machines paused to pour a stream of wheat into the grain polished bodies of trucks, they were adding to one of the largest reserves of wheat we have ever known. This ocean of grain is not only straining our storage facilities and our domestic price support program, it is also providing an acid test for the International Wheat Agreement, the export program which has been absorbing the wheat from over ten million acres for the past four years.

The International Wheat Agreement, usually called the IWA, or simply The Agreement, was designed to provide a steady market for exporting countries and to assure grain at a reasonable price for importing nations. During the first four years, the agreement operated satisfactorily even under the pressure of high prices. Now, with the world wheat crop so abundant that some traditionally importing nations have a surplus of wheat for export, the floor on prices set up by the IWA may be tested. Though the roof stayed on and protected the importers during the upswing of prices, the floor beams may collapse under falling prices and bring the whole structure down.

SURPLUS WHEAT, which is burdening price supports and the IWA, is being stored in a new device, a weather-proof, canvas bag.

Most of the farmers who produced this great surplus think of the International Wheat Agreement, when they think of it at all, as the marketing system recommended in the resolutions they voted for year after year in their Farm Bureau, Grange, and Co-op conventions. When the agreement was negotiated and approved, the resolutions naturally stopped and so, to a large extent, did the interest in the actual workings of it. This, in spite of the fact that over half of our wheat exports are handled under the IWA.

Perhaps the general lack of interest in the IWA stems from the fact that the effect of the agreement on the price the farmer gets for his wheat is very indirect indeed. Price-wise we sell wheat under the agreement at a lower figure than the farmer sells it to the local elevator. The real effect of the agreement comes from the fact that it provides an outlet for a fifth to a quarter of our wheat and so holds down our surplus and permits us to have larger acreage allotments than we would otherwise have.

The attempt to work out such an agreement started back in 1931 with a meeting of representatives of interested nations in Rome. It was not until 1943 that an agreement was actually worked out on paper—but that is about as far as it got. It was a formal paper agreement which was allowed to die without ever being put into operation. A second agreement was negotiated and signed in 1948, but, since such an agreement has the status of a treaty which requires Senate as well as Executive approval and since 1948 was a key political year, the agreement was bottled up by a Senate Foreign Relations subcommittee and allowed to die with the 80th Congress. The following year a new IWA was reached and was signed and put into effect by 46 nations. This agreement was in effect from 1949 until June 30, 1953 at which time a new one was signed; this will continue until 1956.

Essentially, this agreement is a contract between the four wheat selling nations and the 43 countries which import wheat. Each exporting nation firmly agrees to sell a certain amount of wheat at the maximum price if the importing nations demand it; each wheat buying nation

Agreement Survive?

By Grant Cannon

agrees to buy its quota of wheat at the minimum price if the exporting nations insist that they live up to the contract. The actual price paid for wheat under the IWA is largely determined by the free world market prices; if the world price is higher than the maximum price under the agreement, then the importing nations naturally insist that the exporting countries sell every bushel of their quotas under the agreement, for the maximum price is then a good bargain. If, however, the world price drops below the minimum price stated in the agreement, then it is the wheat selling countries' turn to demand that the buyers live up to the agreement and take their full quotas at the minimum price, which is now a very attractive price, being higher than the free market price. Under the present agreement, for example, the United States, the largest of the four exporting nations, agrees to sell 209,558,085 bushels of wheat at the maximum price, $2.05 a bushel, while Saudi Arabia, one of the smaller of the 43 importing nations, agrees to buy 2,572,000 bushels at the minimum price of $1.55.

During the life of the first agreement the world price was consistently higher than the maximum price (at that time the maximum was set at $1.80 a bushel) and over 98 per cent of the quota wheat was bought by the importers. Since the exporting nations, the United States, Canada, Australia, and France, were among the most powerful financial nations in the world, they were able to stand the gaff when over half of their export wheat—the quota wheat under the agreement—was selling for less than the world market. Should the world price drop below the minimum set by the agreement, there is considerable doubt as to whether a great many of the small importers could subsidize the buying of wheat at above market price for very long.

At the present time, the world price is between the maximum and the minimum prices and—since there is no particular advantage to either side to work within the IWA—only about half the quota wheat for the crop year 1953-54 was sold through these channels. The rest of the needs of the importing nations were filled from the free market. We could have insisted, of course, that every bushel of our huge quota be taken by importing nations, but only at the minimum price, which would have been silly since that very wheat was selling on the free market for considerably more than this amount.

As every farmer knows, when a price is quoted for wheat it doesn't mean just any old wheat in any old part of the country. Here in the United States, a price with no description attached to it usually means Number 2 wheat at Chicago. The maximum and minimum prices listed in the International Wheat Agreement refer to Manitoba Number 1 wheat in storage at either Port Arthur or nearby Fort William, Canada, on Lake Superior; the money mentioned is Canadian too.

Manitoba wheat was used as the standard because it is known by all importing countries. This is Canada's only export wheat, a high protein, hard, red, spring wheat with which she dominates the international wheat trade. The price relationship between the wheats grown in the United States, Australia, and France, the other exporting countries, and Manitoba Number 1 has been established by the international wheat traders over the years.

The setting of the price for each of the two agreements was done by farm experts and diplomats but, as one of the negotiators said, "We may have been working in a striped-pants atmosphere, but, like any bargaining, it soon got down to real fancy and complex horse trading. The exporters used all of the known facts about international supply and demand to boost the maximum and minimum prices and the importers used them to hold the price down. We wanted a reasonable area between the two to permit free trade to operate in setting prices based on supply and demand.

"There were also some disagreements between the exporting countries as well as between the exporters and importers," he continued. "When we worked on the first agreement, both Russia and Argentina, the only other important exporters, sat in with us. The Argentinians, who normally export between sixty and a hundred million bushels of wheat a year, had an interesting point. They said that since they were a big importer of many products other than wheat, they would be glad to set a maximum price on wheat

(*Continued on page* 135)

Rotary Cutters

The whirling blade cutter is putting thousands of acres into cultivation; it shreds, clips and mulches, but can't be used for making hay

IF YOU CAN picture a man with a scythe, whirling around at 200 miles an hour, you gain some idea of the cutting power of the rotary mower. Then make the cutting blade out of ⅜ or ½-inch steel, hook it up to the power take-off spline of a husky tractor, and you have a whirling mower that will chop everything from grass up to trees as large as the tractor can ride down.

The next step is to build a box around this whirling blade so that the cut grass or weeds are bounced back into the path of the blade. Now you have a mulching device that disintegrates anything that is in its path. As one Iowa farmer said, "I couldn't believe it until I saw it!"

Rotary cutters have been made for a long time—the first patent was in 1854—but their use was thought to be limited to chopping corn stalks after the crop was picked. Then after World War II there were idle fabricating facilities in the steel business and several firms started to make the rotary cutters. Beef cattle prices began their long climb and more pasture land was needed. In the South the land boom was on, and everything from bush-hooks to bulldozers was thrown into the battle to clean up scrubby fields of oak and pine.

Then southern farmers discovered that the rotary cutter was much more practical for clipping pastures and knocking out scrub brush than a sickle bar mower. In one year, 1948, rotary cutters became the most sought after tool in the South. Farmers and clearing contractors found that one cutter could do the work of many field hands in clearing a pasture. Best of all, there was no gathering of brush or hauling or burning to do after the cutting had been done. The rotary cutter turned brush, weeds, and grass into an organic mulch, which southern pastures needed so badly.

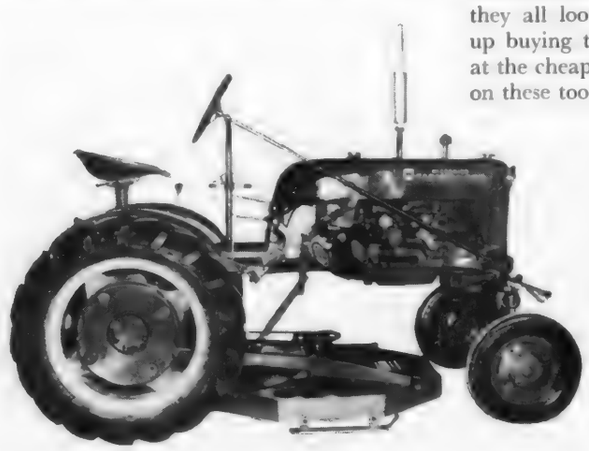
The improved rotary cutters today have a number of features that make them safer and more efficient machines. Since there are at least twenty nationally known manufacturers and many local ones, the farmer who starts out to buy one may decide that they all look pretty much alike and end up buying the one that is offered to him at the cheapest price. And price is a factor on these tools, for they range from $350 to over $1000. But there are certain design features to look for when you buy a rotary cutter.

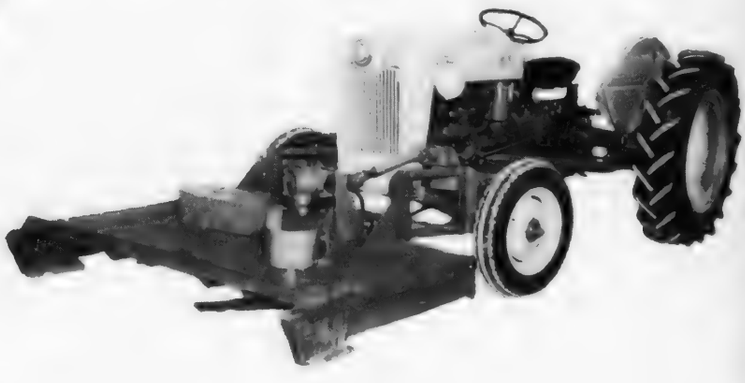
How It Works

Before we get into features, let's study a typical rotary cutter and see how it works. The horizontally revolving propeller, the cutter itself, is made up of two removable blades mounted on a cross-bar with bolts. The blades may be rigidly mounted with shear-bolts, or they may be swinging, as in a hammermill. The cross-bar is mounted on a shaft that extends up through a spindle mounted on a metal canopy that covers the blade area. The shaft may get its power directly from a gear box, or by "V" belt drive. The gear box is similar to those used on post hole diggers, and takes power from the power take-off of the tractor. The power is transmitted through a universal joint drive shaft. The gear box serves to change the power from a horizontal rotation to a vertical one, and the speed is also increased from 2 to 3 times by the gears.

The cutter rides on rubber-tired wheels which are mounted at the rear or at the side of the machine. For hydraulic lift

(*Continued on page* 116)





NEW designs in rotary cutters are shown at the left, in a between-wheel mounted cutter made by Wood Brothers for small tractors. Below, the front, hydraulic-mounted Danuser model. At the lower left a Lilliston machine is doing the job at which a rotary cutter can't be beat—clipping a pasture. It can cover 40 or 50 acres a day. On the opposite page a cutter is chewing up 8-foot-tall brush along a fence row. By cleaning up the edge of a 10-acre field this farmer was able to put nearly an acre more into cultivation.

MAYAN FARMER

By Fred Knoop

JUAN CAAMAL ran swiftly out of the scrubby forest. Over his shoulder trailed the black plume of smoke from a blazing torch of frayed Catzim wood. This April 2 was one of the important days of his farm year, for a good burn of his cornfields could mean the difference between many days of weeding with his machete, or just a few days.

As Juan fired the piles of brush he gave a shrill whistle to the blistering southeast wind. Today the wind was strong and steady and it flattened the smoke to the ground. The Padre had advised more regular attendance at Mass to be sure of a good corn harvest. He did that but, taking no chances he whistled to the southeast. It was a token to the Gods of his ancestors, the Mayas, who had lived in the misty forests and highlands to the south in Guatemala for 3,000 years.

Now and then Juan kicked a smoking branch into the blaze. He feared no burn, although the soles of his feet were protected only by his sandals. Had he not paid 20 centavos instead of 10 just to get the magic word *Firestone* on the sole? These cut-up pieces of old tires, tied to his ankles with coarse rope of sisal, made him sure-footed as a deer as he jumped over the rocks that littered the field.

The Milpa

Where Juan burns the field for his corn was once the scene of one of the world's great civilizations. Here, 50 million Mayas lived in prosperity and peace, well-fed by abundant corn crops. Today, the three acre space of Juan's milpa—the Aztec word for cornfield — amounts to 7½ acres and is 8 miles from his home in Oxkutzcab.

Over half the dishes his wife cooked were made from maize. Each morning she took a pan full of lye-soaked grain to the mill and for 10 centavos had it ground for tortilla making.

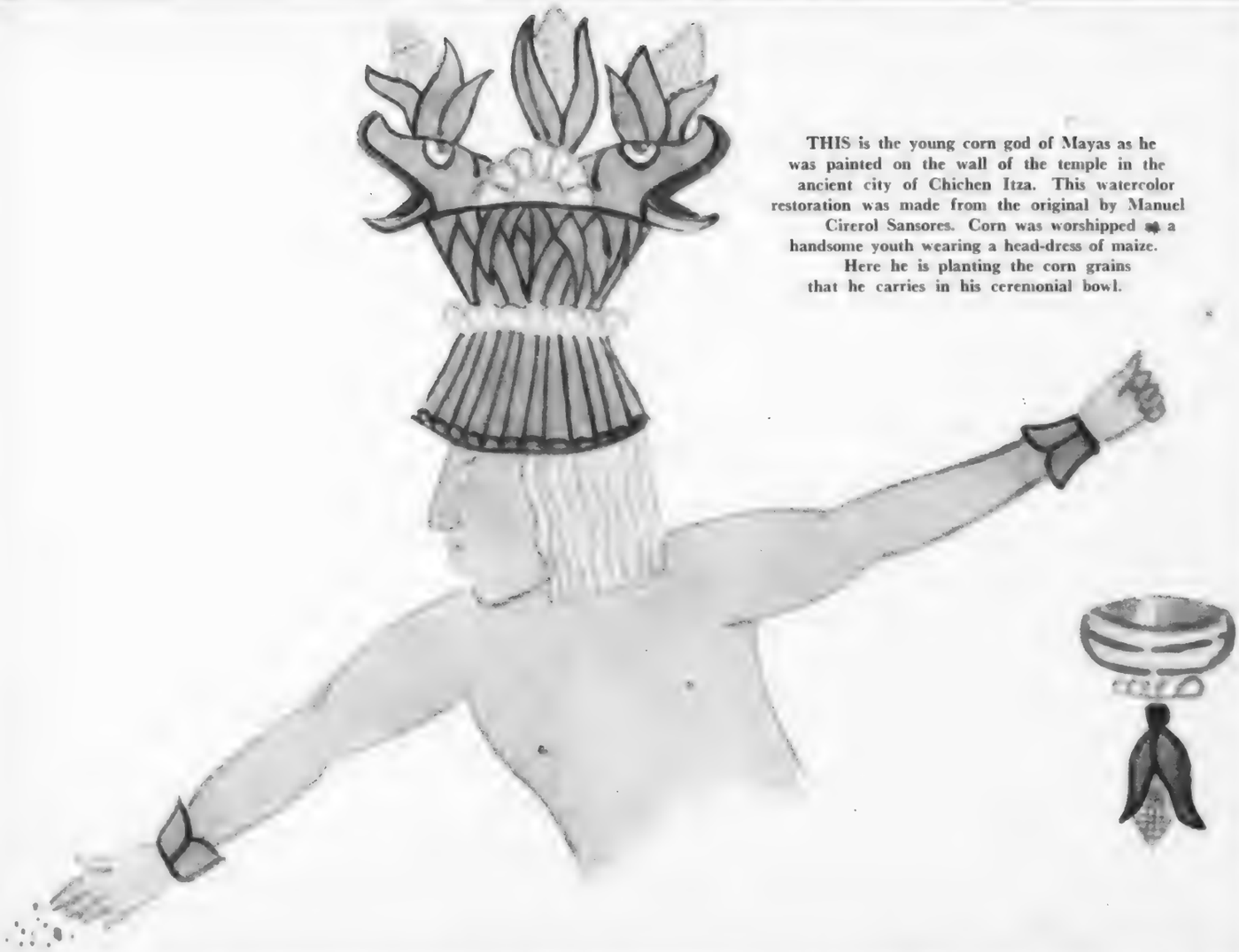
Juan's milpa was rent free from the State of Yucatan, except for an income tax of 25 centavos for each 95-lb. sack of corn raised on the land. If the winds were good and brought the rains, it would take only about 25 more days of work scattered through the summer and fall to have the largest part of his food laid by in the cribs in the field and in his house. Then he would have time for his vegetables and fruits in irrigated fields of the Association called Recursos Hidraulicos Unidad.

He and the other 49 members of the Association were the most envied of the Maya farmers. With the water of the irrigation project they had made a 150-acre Garden of Eden. Even in the grey Yucatan landscape of the dry season, their tomatoes, cabbage, pineapple and bananas were a bright green. Six of his brothers farmed in the irrigation project, too. Each man could own and farm one hectare.

Always the Machete

To get the milpa ready for planting Juan had gone through a routine that has been used for as long as anyone can remember.

THE sharpened stick and the hemp bag full of seed are all the Maya needs to plant his corn. Long before Columbus discovered America he knew the secret of raising a good corn crop. The Mayas (right) are burning a cornfield, the only preparation given before planting.



THIS is the young corn god of Mayas as he was painted on the wall of the temple in the ancient city of Chichen Itza. This watercolor restoration was made from the original by Manuel Cirerol Sansores. Corn was worshipped as a handsome youth wearing a head-dress of maize. Here he is planting the corn grains that he carries in his ceremonial bowl.

THE graceful banana bears fruit at the top of the stalk, while the blossom hangs like a huge jewel at the bottom. In nearby Guatemala it has been the pivot point for revolutions and jungle fighting. This one grows peacefully on irrigated land near Oxkutzcab, Yucatan.

When the blazing sun of Yaxkin (March) had passed he and his brother, Lucio, measured off the new milpa, using a home-made sisal rope. Always the rope was supposed to be a mecate long—that was 65⅗ feet—and always they made their mecate rope 70 feet long. Everyone did; it was the custom. For a more definite answer, Juan would say, "It takes care of what the deer eats" or "The extra will feed the birds." For nearly three weeks he and his brother had hacked and chopped at the jungle with axes and machetes. The chopping and burning are more than a clearing process; it will also provide the potash and clear the soil of weeds. The thirty-foot trees took more time to chop and cut up, but they told of the fertility of the soil underneath.

Even if the stumps had not kept the plow out of the cornfield, the loose rocks and scattered outcroppings would have. A man with a softer pair of hands and a less tenacious will would have long ago given up and gone to Merida to work in the hemp factory. But Juan is a farmer who has learned to use his wiry five-feet-three-inches. He loves the land, and a rocky, ungrateful soil like this could only be tamed by a man who knows its disposition.

To talk to either Juan or his soil you have to use the harsh and expressive Mayan language. Juan knows Spanish, but he is a Maya and Mayan is the everyday language that he uses to tell of his farm, of the wind that is his friend or his enemy, and of the great cities that his ancestors built all through the Yucatan Peninsula.

This year the wind has been his friend and the flames leap from the dry brush. By afternoon the sun casts a weird yellow light over miles of the countryside; as if by signal hundreds of other farmers have decided that this is the day for the burning. In a day or so more brush will be cut around the edge of the field and this will be thrown up to make a stock fence to keep out wandering cows and horses. Then Juan will watch the sky and test the winds. When the cumulus thicken with the afternoon sun and the wind shifts to the east and northeast, he must have his corn shelled and ready to plant.

The corn will be planted after the first rains. In Yucatan the devout believe the rains will start on the Day of the Holy Cross, which is May 3.

Once the ground is softened, Juan will sharpen a Zapote branch about the size of the handle of a baseball bat and 5 feet long. With this rough planting stick he will jab holes 4 inches deep in rows that are as straight as the stony soil will allow. The holes will be about 3 feet apart.

Corn Planting Time

The rhythmic march of planting, down the length of the milpa, is done with great ceremony. The precision of the left arm jab with the planting stick, the swing of the right hand from the hemp bag that holds the grains of corn, to a straight arm position from which the corn grains are dropped, and the brushing of earth into the hole on top of the 3 to 6 kernels of corn with his sandals, could not be done with more concentration if the Young Corn God of the ancient Mayas were looking over his shoulder. For Juan, he is.

Weeds have always been a problem for the Maya in his cornfield. In the old days there were no sharp machetes of iron. The stone axe was not good for cutting the tough vines and weeds, so the weeds were pulled, laboriously, by hand. A new milpa needs only to be weeded once or perhaps twice in the growing season, and it is done, not by hand today, but with the swinging, hacking machete. Because the weeds can grow and seed throughout the year, they will have become a dense mat by the time corn planting time rolls around in the second year. Cutting and burning the weeds before planting time in the second year slows them up, but by the time corn is half-grown, the problem is to find the corn.

JUAN CAAMAL tests the edge of his miniature machete. This one he uses to open beehives. Tending 100 hives is part of his farm work.

But next year and its choking weeds are far off and this year Juan expects to get about 900 kilograms of shelled corn from each hectare. If the rains do not come he will be lucky to have a harvest of half this amount. Since a kilogram is about 2⅕ pounds, a yield of 900 kilograms will figure out to about 16 bushels of ear corn to the acre.

Some sweet corn is raised to be boiled and eaten as corn on the cob, but most of the corn is of a pale yellow field variety,

THE OLD HOME PLACE—in Yucatan. This is a typical farmhouse. The rocks are not part of a rock garden; they live there.

THE MAYA meal isn't complete without tortillas—crisp corn cakes. This mother and daughter fry them in the summer kitchen.

WATER is abundant in Yucatan, 60 to 100 feet underground. This young wife wears the traditional, embroidered huipile.

an open pollinated seed that is selected from the largest ears each year. This yellow corn grinds well and may vary slightly in color, kernel size, and shape with the locality. The corn of one village is grown year after year on the farms around it. There are no seed salesmen. If a farmer doesn't have enough seed he can borrow it from a neighbor.

With rains during the growing season, the corn will grow 10 to 14 feet high, and it will ripen in about 6 months. The stalks will be bent over sharply just below the ears after the corn has ripened. The ears may be left on the stalks in the inverted position for several months, and the corn harvested as it is needed. It is protected from the rain, sun, and birds in this position.

The Mayas use very little fertilizer other than that provided by the ashes from the burning of the brush. Chilean nitrate is sometimes sprinkled around each stalk of corn in a sidedressing after the corn is a foot high. Lime is rarely needed as the soil is constantly being replenished by the breakdown of the calcareous rocks. If it were needed, it could be found nearby, for gypsum caves are scattered along every road.

Once his corn is planted, Juan has the time for his irrigation crops and it is from these that he can make money which will put him above the average Maya farmer. He has earned 100 pesos (Mexican dollars) off of each mecate he plants in tomatoes. Tomatoes he can plant three times a year on each of his 25 mecates, so it is possible for him to have a gross income of 7,500 pesos a year. However, the rainy season, blight, and bad luck may bring his income down to half this amount. Then there is the bill to pay for the irrigation water. It costs 8 pesos per hour and this must be paid to the Unidad, or Association. Sometimes he will need water for 16 hours of the day. To tell of the formation of the Association, Juan uses the formal language reserved for dignitaries: "To Governor Victor Mena Palomo, we farmers of Yucatan have great reason to be thankful. He bought 'el Caterpillar that can pump tirelessly day and night. Now after paying all my costs, I may end up the year with 1,500 or 2,000 pesos. We have underground rivers here and this may be the start of a new time of great farming for our people. Once we led the world in farming and knowledge."

This is no idle boast from Juan, for once this peninsula was the most civilized part of the world. Here great cities were built on the hills. Here a population estimated at 25 to 50 million people lived.

Ruins of the Great Past

Juan has no superstitions about going to visit these ghost cities. On Sundays when the crops are not in need of water, the children are scrubbed and put into crisp white cotton, the girls in their embroidered huipiles for the excursion. They all crowd aboard the early morning bus that goes to Muna, then walk the last 9 miles to Uxmal, where the last great pure Maya city stood. The ruins have been uncovered, the stones have been put back in place in the great palace of the Gobernador and the Pyramid of the Magician rises over 100 feet in the air.

Juan has tried to think how he, a farmer, might have fitted into this great city of the past. What would it have been like to have seen the great crowd walk in the square; then stop at the appearance of an official, high on the pyramid, and listen for the word of the day of corn-planting. Out on the palace steps would come one of the respected astronomers with his parchment.

Of the 19 months of the accurate Maya calendar, the priests found the one most suited to planting. The Mayas based their arithmetic on a system using 20 as a base instead of 10. Probably they considered their 10 toes as well as their 10 fingers in working out this vigesimal system of mathematics. They realized that in mathematics, as well as in a calendar, you need a starting point and conceived a "zero" for each. This brilliant piece of thinking took place nearly 1,000 years ahead of its discovery by the Hindus and 2,000 years before Western Europeans commonly understood and used it. Maya astronomers at Copan, Honduras, in 500 to 600 A. D. realized that the 365-day year was not correct and they made corrections to bring the year to 365.2420 days. In 1582 Pope Gregory figured 364.2425 days. Modern astronomers with such telescopic giants as are mounted on Mount Palomar calculate the year at 365.2422 days!

Maya astronomers devised the calendar and kept it corrected for the benefit of the farmers with their cutting, burning, and planting and harvesting. With their ability to predict eclipses of the sun and moon, the time of appearance on the eastern horizon of Venus, the Evening Star and the setting and rising of the sun and moon, the priests convinced the common people that they had a direct line to their deities.

The Mayas were the only pre-Spanish peoples in either of the Americas who had writing—though they used ideographs rather than an alphabetical system. Diego Landa, first Bishop of Yucatan, writes in his diary of having burned 50,000 volumes of Maya literature—works of the devil. So thoroughly did the Spaniards destroy these writings that we do not have enough left to enable us to break down their system of writing.

The Mayas Had No Wheels

With all their culture the Mayas did not have the wheel nor did they have pack animals to carry their loads (the horse and ox were brought by the Spaniards).

Painting and sculptures in the Maya ruins indicate that the common people

(*Continued on page* 84)

MAYA sculpture in the ancient cities was hewn from solid rock. This figure bears a Chac ceremonial mask on his head. The statue is from the Temple of the Warriors at Chichen Itsa.

THE House of the Magician is a great pyramid at the ancient city of Uxmal. Visitors may still climb its steep stairway to look out across a part of Yucatan where millions of people lived 1000 years ago.

THIS young Maya mother has traded the native, embroidered huipile for the convenience of a Mexican dress, although her 9-month old daughter wears a huipile. When the baby cried in church the mother quieted her by nature's most effective method.

The Standardbred

He provides sport for millions of Americans at the fairgrounds and the raceways; raising him is a highly specialized kind of farming

DOING what comes natural keeps a man young. It helps him to make a good living, too. Last May, William Murray celebrated his eighty-third birthday planting corn and looking forward to the day when the crop would be picked and fed to his horses.

William Murray and his son William B., a father-and-son team, have made an outstanding success in the horse business. Most people think of horse raising these days as merely a sport for the wealthy. That's not the case with the Murrays. The 460 acres of their Bonnie Brae Farms, just south of Wellington, Ohio, produce just one cash crop—horses—and they've made better than a good living.

Back in the days when the ponderous Belgians and Percherons and Clydesdales furnished the horsepower for American agriculture, the Murrays had an outstanding reputation among the Percheron breeders. Their mare, Carthela, was virtually unbeatable in show rings all over the Midwest and won the Grand Championship of the International two years in a row. They sold show horses and work horses all over the country, even exported them to such far spots as Transvaal, South Africa.

But by the early '40s tractor and truck had won a complete victory over the draft horse and the man who wanted to stay in business had to find another breed. Picking a new one presented no problem to the Murrays; they simply turned back to the first love of the elder Murray—the Standardbred.

What Is A Standardbred?

For those who are not familiar with the trotting track, Standardbred may need a definition. When horsepower was a matter of bone and muscle rather than steel and gasoline, great-grandpappy was mighty proud of his mare that could brush along the road, leaving all challengers choking in her dust. Many an impromptu race was occasioned by a trip to town; likewise, many a trip to town was simply the excuse for a good, hot dash.

Inevitably, time came to be the leading contender in these events; racing was transferred to the track and a special registry established for animals that could trot or pace a mile in 2:30 or better. Thus the name Standardbred for a horse that could go a mile in what was referred to as standard time. Today the standard is 2:20 and the magic number of the sport is 2:00, the two-minute mile being considered the gauge of perfection. The Standardbred horse of today is a highly bred animal that traces his pedigree back through generation after generation of forebears who through the years have reduced that first 2:30 record (actually it was 2:29½) taken by the grey mare, Lady Suffolk, in 1845, to the present trotting record of 1:55¼, held by Greyhound, and Billy Direct's pacing record of 1:55.

All of these horses are descendants of the Thoroughbred sire Messenger, imported to this country in 1788. They go back to him almost entirely through William Rysdyk's Hambletonian, the horse that is often called the "Great Father" of the Standard breed. Hambletonian never raced. He began his stud career as a two-year-old in 1851, and in 24 seasons got 1,331 foals. Breeders today limit their stallions to a maximum of 50 to 60 mares in a season, but a book of 100 mares was common for Hambletonian. From 1860 through 1866 he was bred to an average of 146 mares a year and in 1864, when he was 15, his matings totaled 217.

Standardbreds are both trotters and pacers. The Standardbred horse is raced in harness hitched to a light two-wheeled sulky. His action is very smooth, having little of the vertical motion of the galloping horse or runner. Trotting is a two-beat, diagonal gait in which the left foreleg works in unison with the right hind, the right fore with the left hind. In pacing, which is a lateral gait, the two left legs work together and the two right legs work together, causing a kind of rolling action from side to side as the animal moves forward, for which action they have been nicknamed wigglers or sidewinders.

There are over 500 harness racing tracks in the United States today, including the 16 in the Grand Circuit—trotting's big league. These tracks offer almost $19 million in purses and depend upon some 13,000 horses to provide the racing. Current registra-

BILL MURRAY examines a sample of semen to make sure his stallion is in good condition and the sperm are active.

TO CHECK a case of scours assistant Jake Aubel holds a foal while Bill treats him with a dose of Peptobismuth.

BIG, AIRY stalls with plasti-glass lights in the ceiling provide comfortable quarters for mares and foals.

ACROSS THE CREEK and up the hill gallops a band of mares. Forgetting completely their trotting and pacing gaits they race to the barn for an early supper. The Murrays have 20 mares of their own, board another 80 to 90 for other owners who send them to be bred to the Bonnie Brae stallions. The bulk of the feed is produced at Bonnie Brae.

tion figures for Standardbred foals run around 4,800 a year.

In 1953, more than 10 million Americans paid for the privilege of watching this sport which had been a favorite of their great-grandfathers.

The Murray Operation

William Murray, the elder, had been a handy reinsman in the years when Grover Cleveland, William McKinley, and Teddy Roosevelt were in the White House. His family had come to this country when he was four years old. His father worked on farms in northern Ohio in the vicinity where Bonnie Brae is now located. When William was in his teens he got a job on a neighboring stockfarm owned by C. F. Emery. The farm was located on the site of the present North Randall race track near Cleveland. After doing general farm work for a year or two, young Murray was promoted to the horse department, then one day in

SON BILL LOOKS on while his father, William Murray, *Sr.*, brings 65 years of experience into play in supervising a shoeing job on their top stud, The Widower.

IT'S THE CAR before the horse as The Widower is led back to his barn. With a pacing record of 1:59½, The Widower was a first class horse on the race track.

YEARLING colts growing into condition for the fall sales stand knee deep in a lush mixture of rye grass, fescue and red top. Separated from their sisters soon after weaning, they are a rambunctious bunch who give real meaning to the term "horseplay." They kick, bite, run and wrestle with each other with no holds barred. A strange colt turned into the field would suffer mayhem. Weeks before sale time they must be confined to individual stalls and paddocks so that can be gotten into the ring without blemishes. RIGHT, The Widower's youthful horseplay developed into a fiercely competitive spirit that took him to the top of the heap. Here he stands in stud condition, several hundred pounds heavier than when he was at the tracks, but still flashing that look of eagles that stamps a champion. BELOW, Mamma gets Junior off on the right foot as she shows a bit of her old trotting form. Fences like this would give nightmares to most horse breeders but they have never caused the Murrays any trouble.

1893, a wealthy Russian bought seven trotters from Emery, and Murray was one of the "boys" who went along to see that the horses were delivered safely in Moscow. It had been intended that he would return to this country immediately after the horses were delivered, but it was ten years before he settled down in America again.

During those ten years he became one of the outstanding harness horse trainers in Russia. He brought his sweetheart from America, married her in Moscow, and by the time he returned to the States he had saved enough to buy the original 134 acres that were the start of Bonnie Brae Farms.

He kept a few trotting mares, had a little track on the farm, where he and his neighbors could try their horses, and did a little racing around the local fairs, but farming was his livelihood. After William B. was graduated from Ohio State University in 1927, father and son bred Percherons until they finally came back to the trotters and pacers.

In this age of machines, many might scoff at the idea of raising horses for profit, yet the Murrays last year grossed around $150 per acre from their 460 acres, only half of which is in cropland.

The buildings and equipment are not typical of the conventional horse farm. The fanciest thing on the place is a combination stallion and foaling barn built of concrete block. It has five 15 x 15 stalls, with a loft and sleeping room above. The sleeping room is directly over one of the maternity stalls and has a window in the floor through which Bill or an attendant can observe the condition of a foaling mare during the night—somehow or other, foals always come at night. The stallion paddock is enclosed on three sides by a panel fence. Every other fence on the place is of ordinary woven wire.

Bonnie Brae's income is from three sources: breeding fees, boarding fees, and the sale of yearlings.

The Stallions.

The farm stands three stallions: The Widower, p. 3, 1:59½ (the p means he was a pacer when he raced, the 3 means he

made his record as a three-year-old, and the 1:59½ is his fastest time for a mile); Chestertown, 2:00⅖, who won the Hambletonian, trotting's richest race, in 1946, and retired with total winnings of $109,369; and Friscoway, 3, 1:59⅕. The Murrays own The Widower, who currently commands a stud fee of $500, and lease the other two studs. Chestertown's fee is $200, Friscoway's $100. Each of these studs is bred to about 50 mares during the course of the breeding season. Only about 20 of the mares are owned or leased by the Murrays; the rest are the property of other owners.

Of the three studs, The Widower is the Murrays' favorite. They got him for $8,300 from Dr. D. B. Rice, of Britton, South Dakota, in 1948.

The Widower has gotten a lot of real good sons and daughters, the most outstanding being Meadow Rice, who earned $113,792 in his first two seasons of racing, $30,000 of which was picked up in the Little Brown Jug of 1952, the world's most valuable stake for pacers. Eighty-seven of his get are in the standard list and 59 of them have gone in 2:10 or better. Three have beaten the two-minute mark.

The mares on Bonnie Brae Farms are a high-class lot, too, though as always in the livestock field, they are lacking in the glamour that attaches to the studs. One of the current favorites among the Murray mares is Lily Direct, by Billy Direct. This little black lady who has just weaned her third foal has a personality that just can't be denied. "We bought her at the Harrisburg Sale in the fall of 'fifty," Bill will tell you. "She was a good, honest little race mare who had campaigned for four years in the stable of Brooks & Drew up in Maine and had taken a record of 2:08⅘. We went to $3,300 to get her and her groom was so heartbroken when she was sold, he was crying when he turned her over to me.

(*Continued on page* 131)

By James D. Frye

River Drivers

Vermont farm boys knew that spring had come when they saw these big men riding logs down the river

AT FIRST, a few leader logs came bobbing past George Morse's meadow where his fields shelved down to the Connecticut. A hired boy on his riverside farm, I saw them sweep along in midstream headed down Fifteen Mile Falls, a stretch which dropped a few feet every mile and of which this quieter section of river was a part. May sweetness filled the air. Orchards spread faint filmy pink patches on the slopes. Southdowns and Cotswolds poked their narrow noses into rocky sheep pastures. Above, the sky arched meltingly blue.

What schoolboy would ever want to lift a book again? Anything to stay outdoors —and now those tumbling logs told me that the river drivers were on us.

Eagerly, while Kate Morse spread out a bountiful breakfast in her many-cupboarded kitchen, I reported my sighting. Kate caught my excitement.

"The River Men are coming!"

River drivers—fabulous, cordy fellows in knitted skull caps, rugged work clothes, tight laced boots with spiked soles; cant-dogs and peavies in their hands; and a gaze ahead for trouble in squinted eyes. They might already have reached Lancaster, New Hampshire, and very shortly we'd see a lone driver riding a loose log for his canoe, his peavy stuck in the bark, knees bent a bit, feet apart, spikes gripping the slippery tossing piece of timber.

Those logs, all easily thirty feet long, sometimes ran to a length of seventy. After limbing, whole trees would be rolled onto the ice. Far up-country, where Connecticut Lakes clustered, logs cut from virgin spruce and pine had been launched into headwaters freed from ice. On each shaved butt end was an identification mark in order that logs might be sorted on their first stopover at McIndoes' Falls, well below our Vermont farm. Snared by a log boom across the river, separated, sorted, and those not for the sawmill released again, the logs would be brought into order. Those sent on rode down to Mount Tom Mill, at Holyoke, Massachusetts,

By the time I had reached my teens, The Connecticut River Lumber Company, formed eight years before my birth in 1868, stood a power in our North Country. Philo Van Dyke, with his brother George, a thrashing old fellow weighing perhaps 200 pounds, had combined vast tracts of timberlands in northernmost New Hampshire, the turbulent riverway, and footloose Canadian or Connecticut Valley huskies so as to market millions of feet of timber yearly.

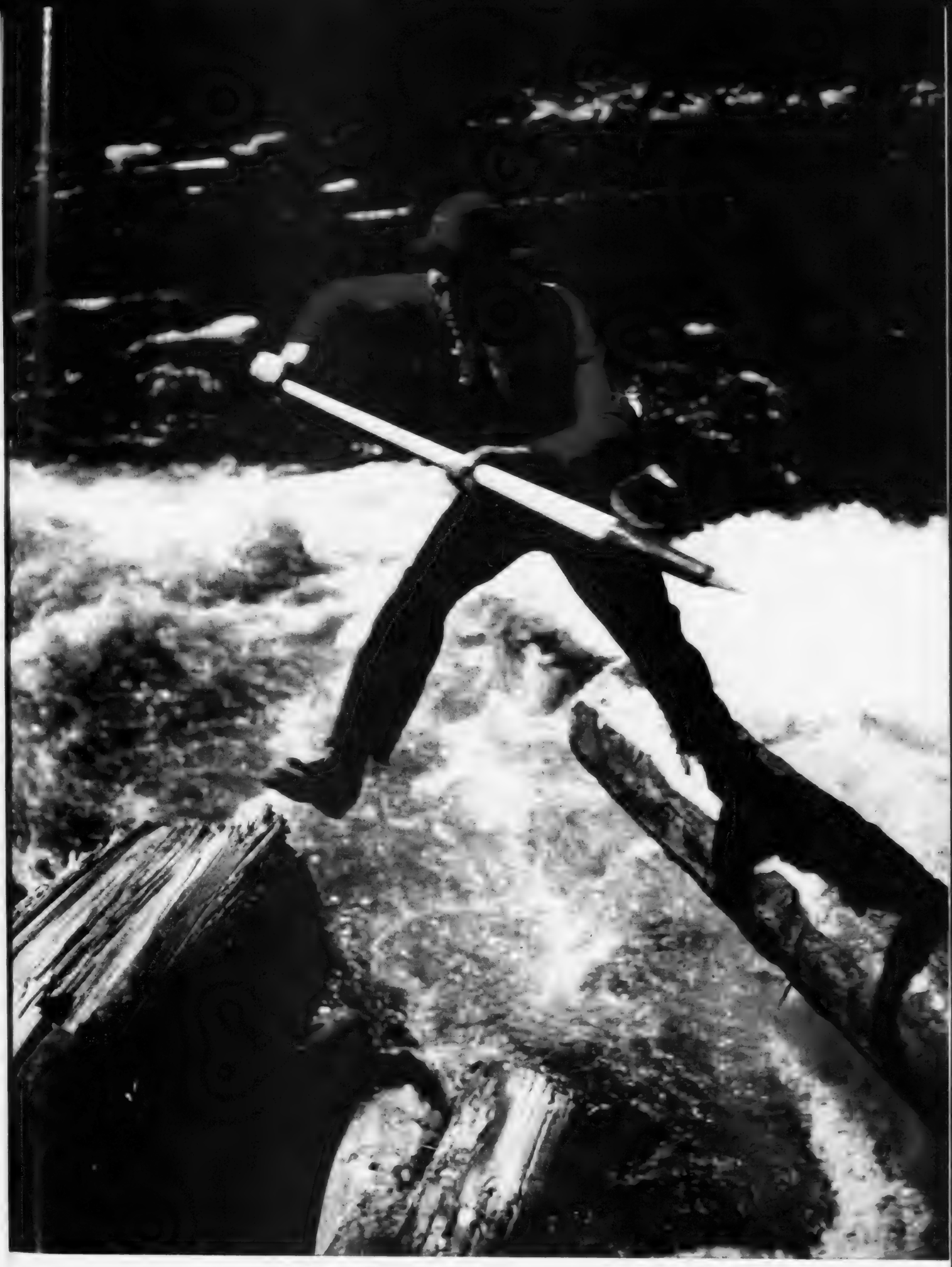
First chance, I sought my cronies to tell of those forerunner pieces of timber scurrying downstream. But Dan and Ed were already aware of the logging men's approach. What better proof than the cumbersome Van Dyke supply wagon rumbling into Concord with its six powerful horses trotting briskly, the just-shined brass on their harness aglitter in the sun, their snaffle chains jingling with every hoofbeat?

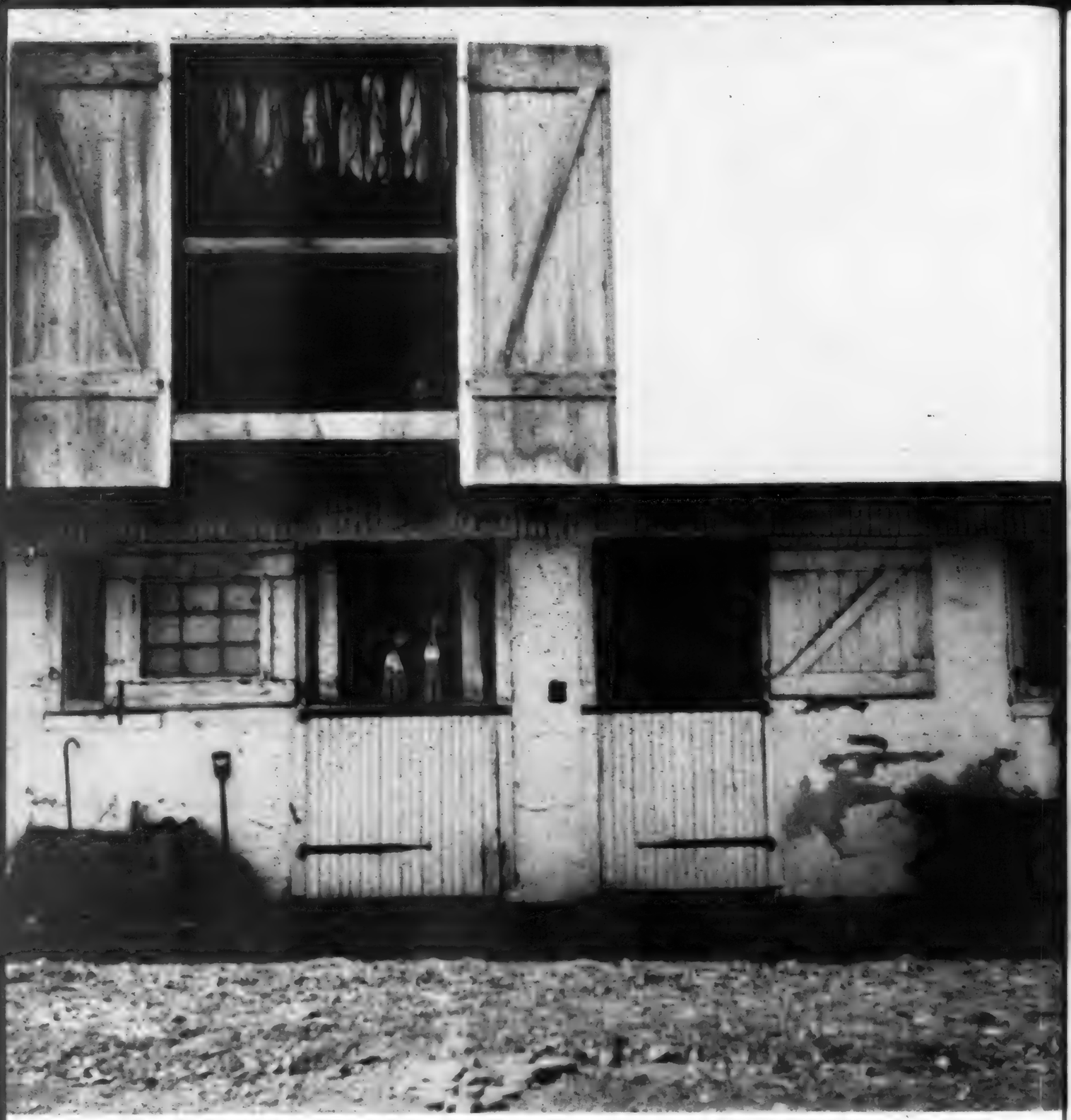
This carried bedding and other equipment for gangs that camped on some piece of tillage or meadow land chosen by those men with fat pay envelopes, the river bosses. To my joy, the camp chosen lay only two miles above us.

From the high mound of supplies, mattresses were hurled onto the ground; rubber blankets followed. Off came canvas for the cooks' tent. (Of cooks there were several to provide the four hearty meals served men whose work hours extended from daylight to dusk.) Horses and trestles were lowered for cooking tables; huge iron water kettles, to be slung on poles above fires built on the ground—the containers for ink-black tea, more common than coffee at the time; ovens for the baking of biscuits and brownbread, and, finally, the great blackened vessel for rivermen's famed beanhole beans.

(*Continued on page* 101)

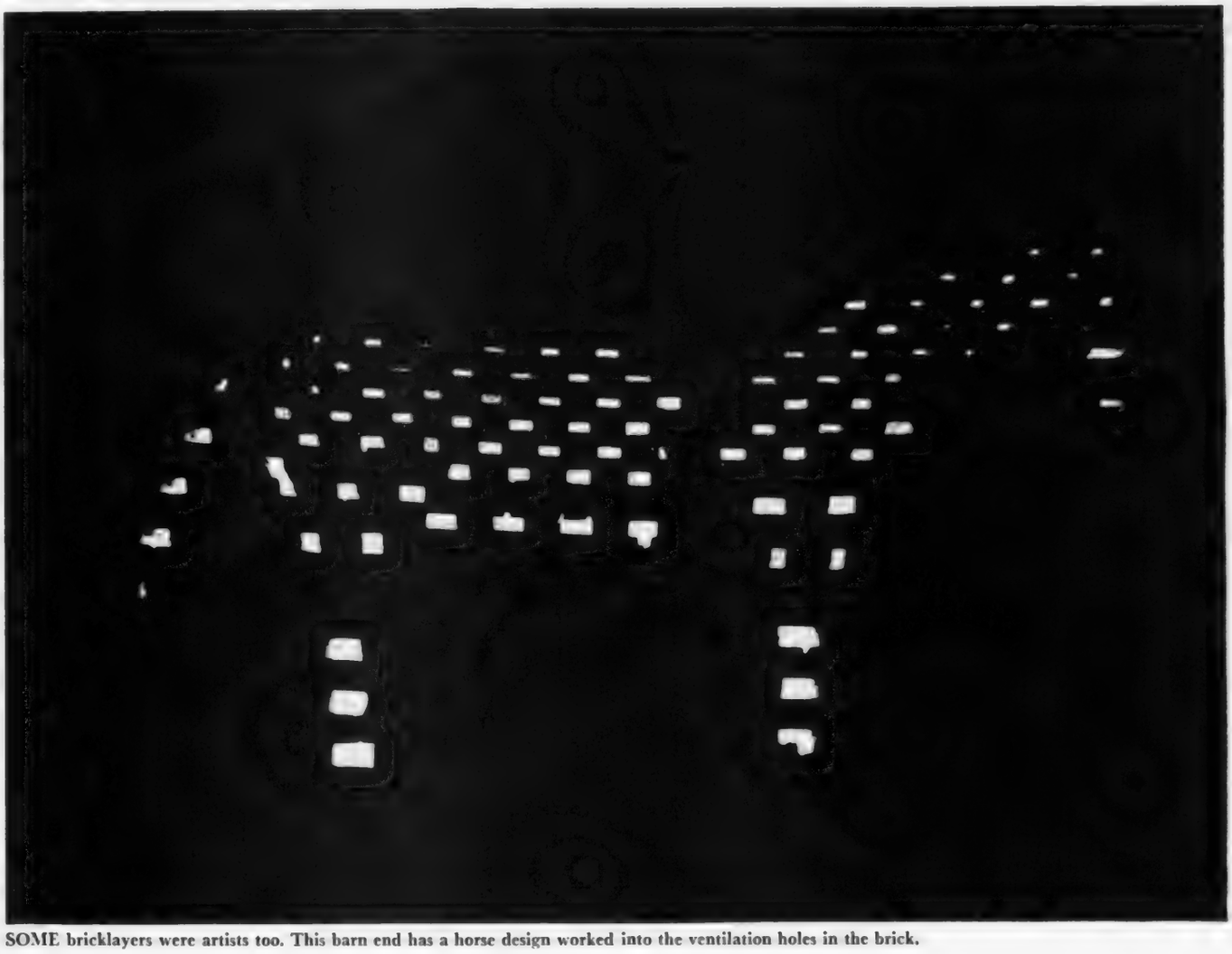
FARMERS let the loggers set up their camp in the pasture in hopes of selling them milk and produce. Small boys watched with wonder as these cat-like men jumped from log to log with only their cant-dogs for help in their balancing act.





Pennsylvania Barns

By Henry J. Kauffman



SOME bricklayers were artists too. This barn end has a horse design worked into the ventilation holes in the brick.

The Pennsylvania barn is uniquely American in design; it flowered in the brick end type in the mid-nineteenth century

IF THERE IS any doubt about who wore the pants on early American farms, a look at the old-time barns will quiet the doubt. Into the barn went the bulk of the family savings and the profits from the cattle and grain. The house might be a box with partitions and the spring a weary trip with a bucket, but the barn had to be the newest, the biggest and the handiest of all barns in the countryside. Anything was good enough for the women; the house, for the men, was only a place to eat and sleep. The barn was for the cattle and the crops, and only the best would do.

Barns have always been an avenue of self-expression for the farmer. They have satisfied his yearning for beauty and his desire to project himself into the material things around him. The best American barns combine a harmonious blending of beauty and utility found nowhere else in the world of rural building design. Like every form of art, barn architecture grew: it did not spring full-blown from the brain of some carpenter, but, little by little, evolved from simple beginnings to the masterpieces which still stand as monuments to the creative ability of unlettered country craftsmen.

The first barns were built of logs and were small because the farms were small. As more land was cleared the barns grew in size, and as wealth accumulated, more money went into making

DESIGNS for ventilation and decoration were worked into the brick ends. The sides were often of wood and were used for painted geometrical designs. Hex marks (below), originally to keep out devils, go on many modern barns as pure decoration.

WHEN THE HORSE disappeared and hay was no longer stored loose in mows, the old barns lost some of their usefulness. Modern wings were added for modern farming.

the barn solid, enduring, and a thing of beauty. Craftsmen through the years perfected their skills and designs.

It was in the Pennsylvania Dutch area, in Lancaster, York, and surrounding counties, that barn building flowered, bursting into full bloom during the first half of the nineteenth century. Incidentally, this was one of the rare areas where the houses kept pace with the barns in design and sturdiness. The thrifty Dutch pioneers liked the creature comforts and they were sociable. They built homes to accommodate a host of relatives and friends for their famous Sunday dinners.

The First Pennsylvania Barns

The pioneer Pennsylvania farmer dug a cave out of a hillside and shored up the opening with logs. In the dark interior were stalls for his cow and his horse, and possibly a small storage bin for grain. His straw and hay he stacked outside. A split rail fence enclosed a small barnyard.

As he cleared more land and his livestock increased he used the logs from his clearing to build a larger and more pretentious structure. The roof was covered with hand-split shingles and the doors were planks sawed by an "up and down sawmill." The hinges for the doors were made of strap iron hammered out by the local smithy. If the farmer were a sensitive man he used hinges and latches of forged iron in decorative shapes. There was a mow overhead for hay and a central driveway where he stored his cart. The cows and horses had separate stalls on either side of the driveway.

On his third round of barn building, the Pennsylvania farmer bethought himself of a permanent structure, one of brick or stone and good, stout timbers that would last out his life and the lives of his grandchildren. He used the materials native to the district, limestone and kiln-dried brick, and oak, walnut, and chestnut. He hired experienced stone masons and carpenters, but when the timbers were joined, his neighbors came in for a barn raising. The frame of the barn went up in a day, and was followed with feasting.

About the middle of the nineteenth century a standard design had developed. Variations from then to the present were either elaborations or adornment. Size varied to fit the needs of the farm, and there were modifications to conform to the lay of the barn lot or the whims of the owner. Serving as they did the same type of general farming, housing the same kind of livestock, and storing the same kind of grain and feed, these modifications were minor.

The typical barn was set against a slope, which provided a natural ramp for entry into the driveway on the second level. This is the "bank" barn, common everywhere. The ground level accommodated the horses and livestock. There were from one to several rows of stalls, pens, a feed room, and perhaps a harness room. This level was entered only at one end, the other being against the ramp or hillside. There was an overhang from the second level to protect both man and beast from inclement weather. There were passageways among the stalls and pens: hay was dropped from the mow directly to the stables through a door or chute. Many of the later barns had root cellars which extended beyond the stalls into the hillside. The side driveway between the mows on the second floor was used as a threshing floor and to store machinery, which was taken out when the granaries and mows were being filled. The potato and turnip cellars were sometimes filled from a trap door in the floor of this level. Large doors, which extended from the ground to the eaves, could be opened to give free access to any part of the threshing floor.

Timbers, up to a foot square, were hand-hewn, morticed, and fastened together with stout pegs. The walls of the stables were of stone, rarely of brick, and extended above ground level on all sides. These masonry walls were sometimes carried upward on the ends on the famous stone and brick end barns. If there were a plentiful supply of stone on the farm, or if a man wanted to build for the ages, he constructed his barn entirely of stone, and labored to contrive timbering of the same durability. The original roofs were usually split shingles, but being the most perishable part of the structure, most of them have been replaced by metal, slate, or fabricated shingles.

Refinement and adornment reflected the personality of the owner or the builder. There were elegant cupolas, which served both as ventilators and as decoration: windows with scroll work to match those on the dwelling: arched doorways, and fancy designs in brick and stone:

HERE ARE THREE STEPS in the evolution of the Pennsylvania barn. Left is the log barn of the pioneer, with the first appearance of the overshoot. As the farm and wealth grew, native stone (above) was used for a more elaborate barn with a ramp. The roof was made of slate or shingles. Right is a fine type of brick end barn, the masterpiece of the barn builder. The second floor is reached by a ramp, the timbers are massive and ageless.

paint, usually red, often with a white trim; and hex marks, to ward off bad luck to man and animal and keep away the ever-present threat of fire.

When hex marks were first placed on barns, they were true symbols of the owner's belief in the supernatural, and a genuine effort to placate the forces of evil, especially witches. Later, they appeared on many barns because the owner thought they added a pleasant touch. To many people, no Pennsylvania barn would be authentic without a hex mark.

Brick End Barns

The brick end barn is the rarest of all types of Pennsylvania barns and is generally regarded as the master work of the early barn builder. Virtually all of them are found in the rich farming region of southeastern Pennsylvania; there are a few across the line in Maryland. Most of them were built by the Amish and Mennonite descendants of German and Swiss emigrants.

They were notable for the geometric designs built into the brick work of the two ends and were usually larger than the average barn, and cost a small fortunte for those days. Few have been built since the mid-nineteenth century.

The grilled designs built into the brick work served a double purpose—they are highly decorative, and they provide light and ventilation. The functional purpose of the designs are so well disguised by their good taste and proportion they seem to be there for their own sake and do not intrude their practical purpose upon the

(*Continued on page* 80)

Factory on Wheels

By George X. Sand

Travelers in Florida around Oviedo and Belle Glade often stare bug-eyed at giant machines moving slowly through celery and sweet corn fields. Above the clatter of machinery they hear a strange Calypso-like chant from the crew of Caribbean negroes who swarm on and around this Juggernaut of the fields. Questions rise: "Who made it?" "How does it work?" The Farm Quarterly *asked these questions of George X. Sand, of Boca Raton, Florida, who answered them for us. Here are the questions and answers:* Editor's note.

Q. Who dreamed up these machines?

A. S. N. Knight, farm manager for A. Duda and Sons, Inc., growers and ranchers, with headquarters at Oviedo and at Belle Glade, Florida. About 1948, while employed by the Duda organization, Knight recognized the need for developing a mobile corn-harvesting unit for the increasing acreage of his organization. Incidentally, Knight, who has been with Duda for the past 10 years, was responsible for introducing the first commercial growing of sweet corn in Florida muckland, in 1945.

Q. How were they developed and who did the engineering and building?

A. Duda and Sons built the first corn machine at Oviedo in 1948. Smaller than the present machines, this one was built about the motor and chassis of a so-called Russian Jeep. This 4-wheel drive vehicle, which employed a 6-cylinder Ford engine (a power plant, incidentally, which is still used today) was provided with extra slow forward speed by means of the addition of two extra transmissions. It employed the "T" conveyor belt arrangement, still in use. That is, it covered a 40-foot crop span by means of two 20-foot "wings" that stuck out on each side at the front, on which the cutters deposit the harvested corn for transportation to the center conveyor. The center conveyor runs down the length of the harvester at the center, with the sorters and packers in position on either side.

It required about 45 people to operate the first machine, and cost about $8,000 to build. Including the front drive axle, this machine had a total of three drive axles, and gave very little trouble. It was built by the Dudas in their own shop.

Q. How many are in use?

A. There are 18 such machines in use today, including a few "leaf" machines. The first celery machine (and this is the largest) was built in 1950 in Duda's Oviedo farm shops. These 18 machines are putting out 80 minimum freight carloads of such vegetables *per day*. On one day in May, 1954, seven of the corn machines packaged 15,000 crates of corn.

Daily peak movement for the machines (18) totals between 16,000 to 18,000 crates of celery and between 20,000 and 22,000 crates of corn.

Q. Are they for sale, and where can I buy one?

A. They are for sale and you can buy one from A. Duda and Sons, at Oveido, Florida.

Q. Are they patented?

A. Duda holds a patent on the mobile celery machine. As far as is known, no patent is held on the corn machine, although the two are very similar in operation.

Q. How much did they cost to build?

A. The first corn machine, built in 1948, cost $8,000 to build. The cost of the present machines is not divulged. The corn machines sell for $8,000 to $10,000, depending upon size, and the celery harvesters are available for about $18,000.

Q. How do they operate, how many in the crew, what do they do?

A. Motive power from the 6-cylinder Ford engine is distributed, in the case of the celery machine, through three transmissions which provide forward speeds that vary from 40 miles per hour on the highway (when the machine moves under its own power to a new harvesting site) to a slow forward movement of about 1,200 feet in 10 hours in the field. There are four axles at the rear, all chain-driven, each employing 36-inch diameter airplane type tires, two at each end of each axle, and one axle at the front that floats. In addition to the speed reduction afforded by the three transmissions, there is an added 4-to-1 reduction gear drive assembly at the rear axles plus a 9-to-1 supplementary reduction at the rear end (differential).

In addition to the variable speed forward movement, power from the single power plant is transmitted via chain and other methods to operate four conveyor belts (i. e., the "wings" on either side, a short conveyor that protrudes ahead of the machine, and the main conveyor line through the center); crate conveyors on either side (that carry the loaded crates to the waiting truck being towed backwards at the rear of the machine for loading); port and starboard "cutters" or saws at the front, where the "wings" join the main body, to top the celery stalks to a standard height of 16 inches; and the washing assembly.

Sixty men and women are employed on the largest celery machines as follows:

Twenty-two "cutters" out front, cutting the stalks loose; 2 "saw men" who see to it that each stalk, once it has been harvested by the "cutters" and placed on any of the three cutters' conveyor belts, is topped or cut to a 16-inch height; 20 "packers," usually women, who sit 10 on each side of the main conveyor belt that runs down through the center of the harvester. These workers remove the excess leaves from the stalks and place the stalks in waiting packing crates at their elbows; 8 "set-off" men who take empty packing crates, line them with paper, and mark how many bunches or stalks are to be placed in the crate. The "set-off men" also assist the packers by positioning the full and empty crates; 2 "crate-makers" who assemble the crates, which are brought to the machines regularly by supply trucks in the flat or collapsed state (the "crate-makers" work atop the machine); 1 "label and chute man" who sees that the "crate chute" above the packers' heads (i. e., upper deck) is filled with empty crates, ready for the "set-off men" to lift down and into position for the packers; 2 "closers" who seal the packed crates with a hand tool that crimps the binding wire into position; 1 "loader" to lift the loaded crates from the final converging outside crate conveyor assembly at the rear of the harvester machine and onto the bed of the waiting truck; 2 foremen (usually one white and one negro), one of whom operates on the ground and the other on the machine; one a packer expert, the other a stripper expert (i. e., an expert on stripping the petioles or limbs of the celery stalks, since each field is apt to strip differently, depending upon the way it grew, disease, etc.).

Q. You say the celery is washed. Where does the water come from?

A. Water for washing is hauled in a 1,000-gallon tank truck to the machine, where it is pumped into a belly tank below the machine. One such tank truck is capable of servicing four harvesting machines. The belly tanks of the machine hold about 500 to 600 gallons, which last about one and one-half hours.

Q. Such a complicated machine must cause a lot of breakdown headaches?

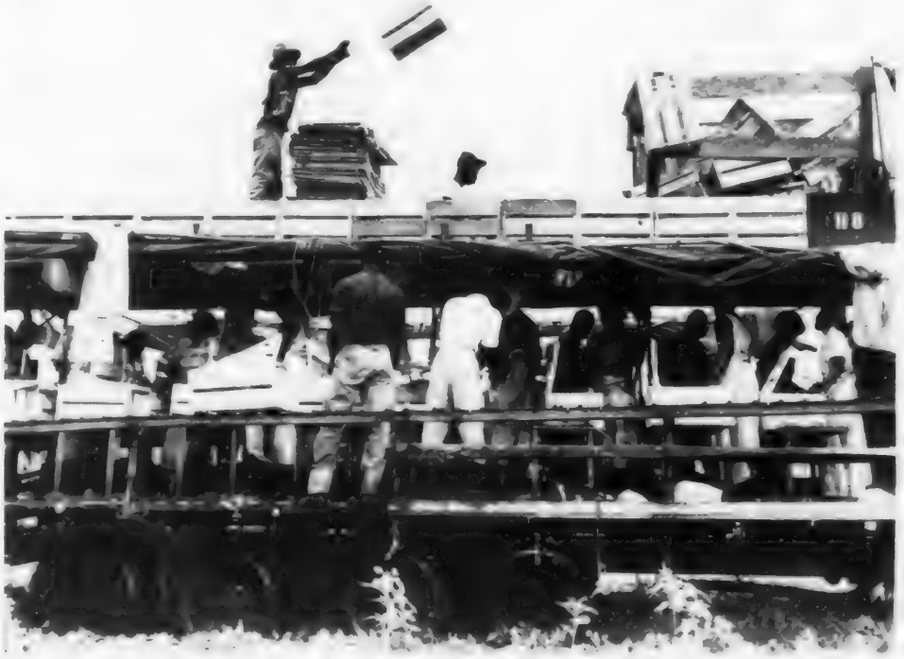
A. Maintenance, according to farm manager Knight, is not a serious problem as long as preventive maintenance is rigidly carried out and is becoming more efficient with each additional year of experience with the big harvesters. Most of the maintenance is accomplished right in the field by mobile welding and repair crews. The greatest wear, says Knight, has taken place so far on the small sprockets for the machines' chain-drive power transmission systems. However, these are inexpensive and easily replaced.

Q. How much does this processing plant on wheels weigh, and what is its capacity?

A. The weight of the celery machines is from 10 to 12 tons, and from 5 to 7 tons for the corn machines. This includes water and workers.

The capacity of the corn harvester is a minimum of 2,500 crates per day, although as many as 4,200 have been harvested, under ideal conditions of quantity, quality, help, and supervision. The same minimum applies to the celery machine, but here, too, as many as 3,500 crates a day are not uncommon.

(*Continued on page 94*)



OPPOSITE PAGE, TOP, Duda's big No. 8 harvests celery from ground to packing box over a crop span of more than 40 ft. BOTTOM, workers on the ground gather sweet corn as the machine moves, piling it on the 20-ft. conveyors. ABOVE, eight double sets of airplane wheels distribute weight evenly on the field. RIGHT, 60 workers service a celery machine. The man atop assembles crates and tosses them into the hopper.

Ice Control

With a water tank heater you can forget about chopping ice. Your stock will drink more water, make more milk and meat, and stay in better health

THE OLD-TIME vaudeville comedian had a standard definition for ice—water frozen stiff. But along about this time of year that isn't funny to the man who will spend the winter feeding stock.

If stock can't get water when they want it, the farmer's income is going to suffer. Milk is almost 90 per cent water; meat is more than 70 per cent water. When water intake goes down, either because of a lack of it or because it is too cold to be taken in sufficient quantities, production goes down. So the farmer must have some way of not only preventing freezing, but of warming the water to the point where his stock will drink enough to keep up the production of milk and meat.

One way to provide drinking water during cold weather is to chop a hole in the ice on the water tank. Another way is to heat the water with some contrivance. These heating units vary from a wood burning stove set in the tank, to electrical units which are fully automatic.

Kinds of Heaters

Before farms were electrified, wood, coal, corn cobs, or oil were used in a stove set in the tank. There are still a lot of these around and they do the job if you don't mind the work of stoking them. Those that burn solid fuels are fairly large and can be used only in a large tank, since they are made to be submerged in the tank itself. They have a fuel box, a combustion chamber, and a stack or smoke pipe. Some means usually must be provided for weighting them down or fastening them to the bottom of the tank. The best thing about them is the cheapness of operation, but fuel must be added at least twice a day and the ashes hauled.

The oil burners are an improvement on wood or cobs. Most of them can use either kerosene, fuel oil, or crankcase drainings, and while there are no ashes to clean out, it's still surprising how fast a gallon of oil will go when the north wind is blowing and the thermometer is in a nose-dive. A good idea with an oil burner is to hook it up to a 50-gallon drum. This will not only insure continuous operation, but will eliminate the possibility of spilling oil in the water when filling the smaller fuel tanks. Prices for

most of the oil burning or solid fuel heaters range from $25 to $50.

Bottled Gas

The same bottled gas that the farm wife uses in her cook stove and water heater can be used in a stock tank heater. These heaters are more expensive than the wood or oil types, but they can be adapted to smaller sized tanks, which saves fuel costs; and they can be automatically regulated by a thermostat. Thermostats are usually set at about 42 degrees. Tests have shown that keeping the water warmer than 50 degrees is unnecessary. Some dairymen may feel that milk production could be increased by keeping the water even warmer. The testing that has been done on this point, however, shows that the increase in production is not enough to justify the cost of raising the temperature above this level. A setting of 39 degrees on a submerged unit will permit ice to form on the surface before the thermostat cuts in.

Both gas and oil heaters are handicapped by the problem of condensate in the inside of the heater. With warm air on one side of a piece of metal and cold water on the other, moisture is bound to condense on the warm side, just as it does on the outside of a long, cool glass of ice water on a hot summer day. Some manufacturers have licked this problem by the design of their heaters, allowing for a sufficient circulation of air in the heater to prevent the condensate from forming. Others build a plug in the heater for draining off the moisture. If properly designed, the former type will provide more trouble-free service.

It is difficult to estimate with any accuracy just what the fuel consumption of a gas heater might be. Everything depends on the location of the stock tank, the protection provided for it, and the severity of the weather. One Iowa user, however, reported that a large tank needed 550 pounds of gas between November 15 and April 15 of an average winter. Gas in his area cost about $8 per hundred pounds.

Joe Masterson, a cattle feeder from central Minnesota—they spell that with icicles five months of the year—has found that the best way to save fuel in heating a large, exposed tank is by insulating it by banking dirt around the sides, sinking a heat retaining box in it to reduce the volume of water to be warmed, and covering the whole affair with a wooden cover. Tests by manufacturers and experiment stations back him up. They show that a triple play contrivance like this will save 88 per cent of the fuel needed to heat an unprotected tank of similar size. The insulation alone will save 30 per cent: the heat retaining box will save 78 per cent; and the cover used by itself will save 16 per cent. Add them all together and you have enough left over to warm the parlor; but, alas, that ain't the way it works.

The heat retaining box is simply a wooden box made of 1" x 6" shiplap or similar material, with an open top and slatted bottom. The box is sunk into the tank and the heater, preferably one of the smaller types, an electric or gas unit, is placed in the box.

Where the current is readily available, the electric heater does an outstanding job. The fire hazard is reduced to a minimum, temperature is readily controlled by thermostat, and there is practically no maintenance cost. There is the one disadvantage—if power fails, the tank freezes.

There are four types of electric heaters and de-icers for stock tanks:

1. The immersion heater. This is a unit that is mounted on the side of any regular stock tank with the heating element about three or four inches above the bottom of the tank. A screen should be placed above the heating element so that the stock cannot drink enough water to leave the element exposed and in danger of burning out. It has been estimated that for every degree above 42 that the thermostat is set, the power cost will be increased about 10 per cent.

The immersion type heaters have a rating of about 1,000 watts and are probably the most expensive to operate of the electric models.

2. The floating heater. In this unit the element is attached to a float and heats a portion of the surface water. Its purpose is simply to keep a hole open in the ice big enough for drinking. With a wattage of 500 to 1,000 it is not much cheaper to operate than the immersion type heater. In sub-freezing weather it will probably be in constant operation, which means that a 1,000 watt unit will be using one kilowatt of electricity every hour. If a man's electric rate is 2½ cents per kilowatt hour, a day of tank warming would cost him 30 cents.

3. The automatic waterer or water bowl. With heating element and thermo-

(*Continued on page* 106)

THIS BOTTLE GAS heater keeps this large stock tank ice-free on a Minnesota farm. During sub-zero weather it operates around the clock with little attention.
Left, oil heaters are an old standby for tank heating. The use of a large fuel drum permits longer operation between refills and eliminates the possibility of spilling oil in the water. Coal, wood and cobs have long been used as a source of heat for stock tanks. Electricity is a real labor saver if electric lines are handy.

Ground Cover

By C. Chester Charles

A cover crop will control erosion, provide green manure, and perhaps make a crop of grain

WINTER cover crops provide green manure, a cash crop, and insurance against soil erosion and packing. Unlike most insurance, however, you don't have to wait for disaster to get your money back from winter cover crops. The benefits come with the next crop—or sooner.

Mervin Blair raises continuous cotton on his Georgia farm. His soil averages one-half per cent organic matter, with two per cent considered low elsewhere. He plowed under a winter cover of blue lupines, estimated at 15 tons per acre, and upped his cotton yield from 380 to 775 pounds an acre.

John Reikert is a careful tobacco farmer, living near Hartford, Connecticut. He uses up to 1,500 pounds of high analysis fertilizer per acre on his "weed crop." A lot of the fertilizer the tobacco doesn't use would be lost over the winter without a cover crop. Reikert follows tobacco with wheat for grain. Where nearby fields run to 18 bushel wheat crops, the tobacco ground goes over 40 bushels. Fertilizer is used instead of leached away and soil is saved from washing.

M. K. Hooper, of Sedalia, Missouri, seeded a 17-acre corn field to Balbo rye last fall. Before replowing for corn, he pastured the rye for three weeks in March with 15 brood cows and 42 ewes. The saving in hay almost paid for the cover crop seeding. "And that many head kept in the barn can make a lot of manure to haul out in three weeks!" he says.

Here and there, in every state, farmers are disrupting long rotations and going back to corn-following-corn or cotton-after-cotton, with fertility maintained through use of heavy fertilization plus winter cover crops. Hurdles are still ahead. More and better equipment for sowing between tall row crops is needed. It's on the way. New, improved seed mixtures are gaining ground. Faster corn picking and artificial drying permit earlier fall replanting. Moisture, always a problem at fall seeding time, is less of a factor with irrigation becoming widespread.

Why the Trend?

Irrigation itself has renewed interest in winter cover crops in some sections. "Used to be," says Paul Oberschlake of Brown County, Ohio, "that we had to get the wheat on so early that by county fair time, the first of October, it was tall enough to hide a rabbit. Now we have to wait till the second week in October to plant it—after fly-free date. So we mud in spring oats, or dust in winter wheat, as they say. We irrigate our seed corn. Why let that soil moisture go to waste? Winter wheat laps it up, the wheat gets a good start in even a dry fall and our soil is still there when spring freshets eat down the neighbor's gullies."

Rain packs bare soil. Battering raindrops erode it. Cover leaves the ground more porous for entrance of water. Take the old example: If water trickles down a hillside five feet a minute, its ability to carry soil has a certain limit. Double the speed of water to ten feet a minute. The water can carry *thirty-two* times as much soil material with it. Close-growing, sod-like crops are the easiest means of slowing down such runoff.

In Georgia, under continuous cotton on one farm, 12 inches of rain and 28 tons of soil per acre were lost. A cover crop of lespedeza reduced losses to 3 inches of runoff and a mere two-thirds of a ton of soil per acre for the year.

Without cover, not only moisture is wasted. Bare soil lets fertilizer get away, too. Much of the heavy applications of nitrogen, especially, which corn doesn't take, washes out with the runoff or is leached away in winter, percolated to subsoil depths beyond the reach of later crops. When nitrogen leaches, it takes some lime, potash and magnesium with it. Roots and tops of cover crops grab on to the left-over fertilizer, preserving it for use by later crops when the cover is turned under as green manure.

Earlier corn picking, artificial drying, increased corn as ensilage, wide row plantings, all are giving farmers a better chance to beat the one thing that used to stand in the way of seeding winter cover after row crops—time. Corn or cotton or beans or peanuts couldn't be gotten off in time to get fall cover well started before frost. Fields in winter had a barren, sorry look in most sections. But the trend is changing.

(*Continued on page* 121)

WHEN CORN was cut and shocked (right) the field could be cleared for planting a cover crop at any time. Between-row drills like this Brillion (left) can be used when the corn is planted in 60 or 80 inch rows.

CHOPPED, WILTED HAY is automatically unloaded and blown into the barn where it will be hot-air dried. The tapered A-frame for the dryer can be pulled out when the hay is dry. The tarpaulin keeps the wind from disturbing the pattern of the blown hay.

TREATED POLES and snow fencing form the sides of this inexpensive barn which is topped with a sheet aluminum roof. The hay is fed with a minimum of labor. As the cattle eat the hay the manger is pulled back against the stack. Occasionally a man with a fork must push down the hay when it jams.

Self-Feeding Barns

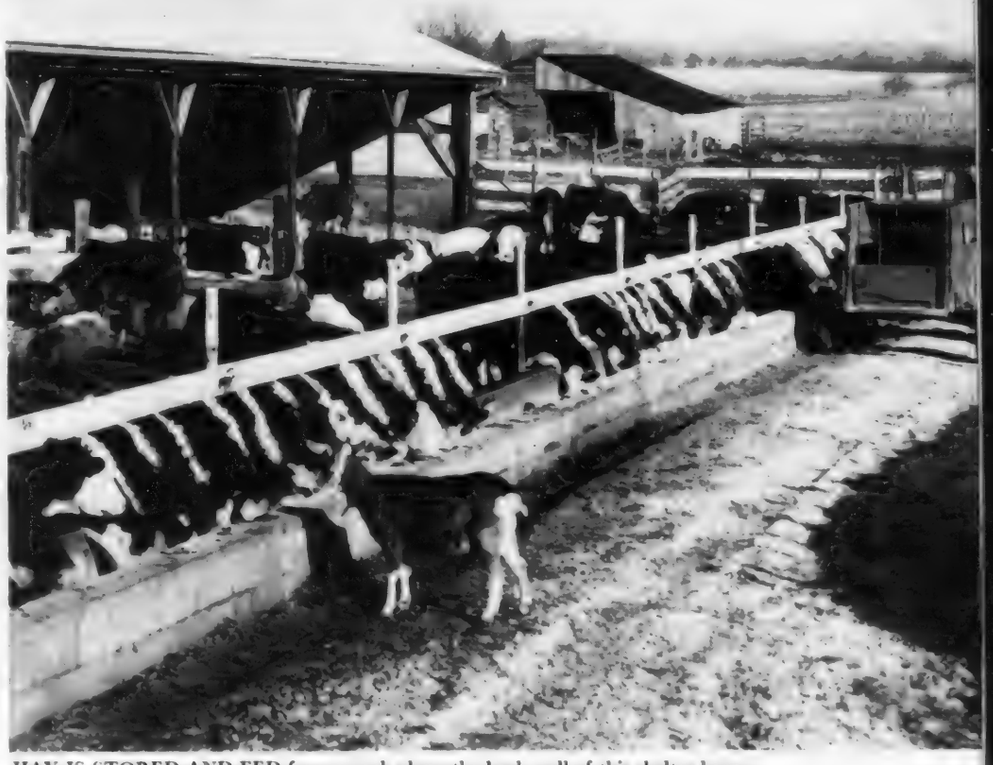
Hay making and feeding time can be cut to the bone when buildings are designed to do their share of the work

By William B. Nevens

WHEN the farmer starts feeding hay in the winter time he is cashing in on his summer field work. But with some farmers this can be as difficult as trying to cash a personal check in a strange town. As William Yaw, of the Farm Clinic of Lafayette, Indiana, pointed out, some farmers, because of the awkwardness of their hay storage arrangements and inefficient feeding methods, spend more time and labor feeding the hay than they do producing and storing it. During the past few years, we have tried to squeeze some of the useless labor out of hay feeding by designing buildings which can be used for self-feeding as well as storing hay. Some of these buildings can also be used for artificially drying the wilted hay.

The need for taking some of the costly labor out of hay-making has been apparent for some time, and agricultural engineers have come up with a number of machines such as the hay crusher, one-man baler, hay dryer, and forage harvester to speed up the process of curing and gathering hay and to take some of the labor out of it. Now we are designing buildings to do their share in saving labor in storing and feeding hay.

When you bring a few facts about hay together, the vast amount of labor consumed in producing and handling it hits you right in the eye. The average Midwest farmer puts in 2 hours and 24 minutes a ton to produce baled hay and store it and another hour and 40 minutes to feed it from conventional mow-type storage. As a nation we produce, store, and feed over 100,000,000 tons of hay each year. In other words, it would take one man 46,296 years to bale, store, and feed one entire crop of hay—though we suspect that after a few thousand years practice he'd be working more efficiently than the average farmer.



HAY IS STORED AND FED from a rack along the back wall of this shelter barn. Supplement is fed from the road into a cement-block feed bunker. The arrangement of the loafing shed, self-feeding hay barns, and milking parlor (below) makes it possible for Art Winters to handle 30 to 40 cows without help.

The figures for a single farm are impressive too. A dairyman will fork down over a quarter of the total annual feed for his cows in the form of hay from late fall until spring. Because they feed less supplement, the beef and sheep feeders will feed an even higher proportion of their animals' feed in hay. With such a tremendous amount of hay to move from hay mow to manger, it is little wonder that farmers are interested in buildings which will let the livestock do some of the work.

The basic building that most farm designers have come up with to help solve the self-feeding problem is the low-cost pole type structure with ground floor storage for the hay and either partly enclosed or fully open sides. Such buildings can be built very rapidly, have a low upkeep, and, when built of well-creosoted poles, have a life expectancy of nearly 50 years. The lower investment in the building also means lower taxes and insurance. And, to top it all off, they have found that a better grade hay can be produced when it is stored in an open-sided building than when held in a completely enclosed, second floor mow.

(*Continued on page* 90)

Automatic Poultry Houses

By Myrton S. Reed

Automatic machines are cutting down time and labor in poultry farming

TODAY, one poultryman with the latest equipment can care for as many hens as 3 men could handle 20 years ago. Back in the 1930's, mechanical equipment was limited to overhead conveyors, bulk feed hoppers, running water, and batch feed mixers. Now we have added automatic machines for cleaning of coops and roosts, feeding, grading and washing eggs, and some inventive hen hustlers have even rigged up mechanical devices for gathering eggs and for closing the coop windows when it rains.

Harry Groesbeck, who was a poultryman in the 1930's says, "It seems to me that there's been a bigger revolution in poultry raising methods and the equipment used than in any other branch of farming. Take coop cleaning. We used to spend a good third of our time and most of our hardest work on cleaning coops. If we didn't clean them every eight weeks or so we thought the chickens would drop dead. Then, along came deep litter and the talk of how good it is for the hens to let it build up: now they don't take it out until you start bumping your head on the roof. They stir in a little lime every once in a while, but the poultryman that's well equipped uses a garden tractor with a rotary tiller device to do that.

"Cleaning roosts is another job that will stick in my memory as long as I live. Man, I can't even think of roost cleaning without tasting that dry, dusty manure. We used a heavy scraper: we'd swing the conveyor on its chains up close to the roost and reach over it to scrape the manure off the dropping boards into the conveyor. With every scoopful we'd get a hatful of feathers and dust right in our faces—all the sweat would mud over with chicken dirt. Now we have regular barn cleaners that clean under the roosts."

Twenty years ago even the best watering equipment had as many faults as virtues. It froze tight in cold weather, and both summer and winter it clogged up with litter and feathers and overflowed into the coop. The water and pumping came high, because there was no automatic shut-off valve. Today, the poultryman has his choice of several different valve-controlled watering devices. If he likes to water out of a trough, he can get automatic trough waterers. If he prefers a cup-type dispenser, the cup type are his for the buying. And he can even get waterers which put out a drop or two at a time when the chickens peck them. He can also get metering devices for adding drugs in exact amounts to the water. And if freezing is a problem in his part of the country, both pipe and waterer can be protected with thermostatically-controlled electric heating elements to keep them from freezing.

The back-breaking job of feeding has been mechanized in a different way. Practically all designs, however, include a large feed hopper and a trough which runs from the hopper, through the coop, and back to the hopper. From this arrangement, three rather different methods of moving the feed through the trough have been developed. One way is to have an endless chain with drag devices run along the bottom of the trough pulling the feed from the hopper around the coop. In a second type, the feed is moved through the length of the trough by an agitating motion of the trough itself, which is mounted on rollers. This may sound cumbersome, but the chickens do not seem to mind the motion of the trough and there is not enough noise to disturb them. A third design has an enclosed feed tube which runs along the top of the trough and meters the feed down into the trough as it is needed. The feed is moved through the feed tube by a chain device. The enclosed feed tube has the advantage of being able to move the feed vertically from one floor to another.

Most all of these feeders are mounted on adjustable legs so that they can be set close to the floor for chicks and gradually raised as the birds grow. The operation of most of them can be governed by a time clock which sets the feed moving mechanism in motion at regular intervals throughout the day.

Manufacturers offer a choice of several sizes in hoppers and motors. Hopper sizes vary from 400 to 1,000 pound capacity and motors run from a quarter horsepower to a three-quarter horsepower.

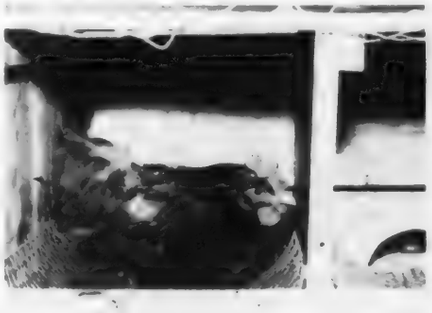
In estimating the cost of operation of an automatic feeder, R. C. Jaska, of the Texas Agricultural Experiment Station, studied the figures on five broiler raisers with flocks running from 3500 to 6000. He found that for the 10 week growing

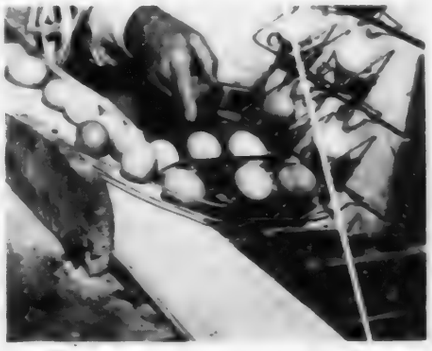
AUTOMATIC FEEDERS tote the laying mash to the chickens on schedule. The mechanism is operated by a time clock.

period, the electricity used ranged from 14.9 to 33.8 kilowatt hours. The average cost, figuring electricity at two and a half cents a kilowatt hour, was 66 cents for each 1,000 birds. When he figured the cost of the mechanical feeder at $1,000 for a 5,000 bird flock and depreciated it over ten years, added six per cent interest on the investment and three per cent for repairs, he came up with the figures of $173.16 for total annual cost including the operating cost for four broods of chickens. He estimated that the equipment saved three-quarters of the labor of one man.

Buying feed in bulk rather than bags saves labor, time, and costs. Bulk feed is stored in a large storage hopper directly over the automatic feeder hopper, which is

EVEN EGG GATHERING IS MECHANIZED on the Archie Coll farm. The slatted, endless belt (above) picks up the eggs on each floor of the three-floor coop and delivers them to the egg room. The egg starts its mechanized journey from a roll-away nest (below left) where it rolls onto a belt which carries it to the slatted collecting belt. Where the two belts meet (below right) metal fingers ease the eggs from one belt to the other. The rig replaces a man.





filled by gravity. Jaska found that on these efficient operations where gravity filled the hopper, electricity fed the chickens, and they were watered automatically, one man could handle three to four times as many chickens as he could the old-fashioned way.

In England and Scotland a slightly different type of automatic feeder and waterer is in general use. A series of feed trays and watering cups are mounted on an endless chain which circles a tier of laying cages. As the trays and cups pass a nest, the hen is given time for a determined number of pecks at the feed, and a drink of water. The trays and cups are filled automatically at the end of one complete circle. On the estate of Maitland Mackey, Aberdeen, Scotland, one man cares for 10,000 laying hens. The cages are in three tiers.

The jobs of feeding, watering, and cleaning are shared by both the broiler raiser and the egg producer. The poultryman who has a laying flock, however, must also handle the eggs. But he too has some new mechanical helpers. As yet, no electric eye has been devised for candling the eggs for him, but the job of sorting the eggs into proper weight grades is handled by mechanical graders. And the work that was always left until all other chores were done and was there to haunt the evening hours—washing dirty eggs—is now done by machinery. Egg cleaners which brush the eggs with wet nylon brushes or stroke them with rubber fingers or agitate them with bubbles or buff them with cloth are all the products of machine designers whose childhood was probably blighted by the after-school or night job of egg washing. Some of these egg washers are so simple to use that many poultrymen don't even bother to separate dirty from clean eggs—they wash them all as they are brought to the egg room from the coop.

Egg gathering on most farms is still a time-consuming job. Eggs must be gathered often to preserve quality—as many as four times a day in the summer. Nests which permit the eggs to roll from under the hen and onto a protected tray as soon as they are laid have been a big help to the farmer. The eggs are kept cleaner, their cooling begins sooner than when they are snuggled in the nest, and gathering them is simplified since they are already partially collected in the tray.

One poultryman who has taken the egg gathering a step beyond the roll-away nest stage is Archie L. Coll of East Jeffrey, New Hampshire. Coll, who has built his poultry operation from a flock of 130 hens back in 1930 to one of the largest in New Hampshire, began planning the automatic egg gatherer several years ago when he decided to build a new, three-story poultry house to take care of 9,000 laying hens.

When he finished his experimenting and tinkering, Coll had a gadget that would collect the eggs from every nest on each floor and deliver them to the basement of the building where they were graded and packed. This work formerly took the entire time of one man who, though a careful workman, cracked almost twice as many eggs as the machine does.

As finally installed and perfected over its three years of operation the egg picker is a combination of horizontal belt-conveyors on each floor which take the eggs from the roll-away nests, and a vertical endless-chain elevator on which are mounted wooden-slat carriers that pick up the eggs as the elevator goes up through the house. When this elevator chain reaches the top floor, it runs across the top of the house, descends to the grader where it deposits the eggs, and returns to the first floor to start over again.

At a flick of a switch in the control room, the whole thing goes into action: the elevator begins its ascent and the conveyor belts begin feeding eggs to it,

EGG GRADING (top left) is now done by an automatic weighing machine. In the background can be seen a brush type egg cleaner. Other cleaners use a pail with agitated water or a buffing wheel to knock off dirt.

AUTOMATIC FEEDING starts at the hopper (left) with feed storage arranged to avoid heavy sack lifting. The feed is moved through the trough in a circuit of the building by chain drag or by movement of the trough itself. The end of the line on one of these moving troughs (above) has a pan to catch the last grains of feed.

one floor at a time. When they reach the elevator, the eggs are picked up two at a time by a set of wire fingers that ease them into position on the twin prongs of the wooden carrier slats. When they reach the top of the building the chain slants down just enough so that the eggs roll over against the next set of prongs, reversing their position for the descent.

With all of the changes and adjustments, it would be hard to figure the cost of this first model. Coll estimates, however, that it would cost about $1,000 a floor to install one in a new house. Operational costs are low, simply the electricity to run two quarter-horse power motors for a few minutes each day.

At the present time, Coll is in the process of patenting his invention and hopes to farm out the manufacturing rights.

Though Coll, with his automatic feeders, waterers, egg gatherers, graders, and washers may seem the ultimate in mechanized poultry work, Dante Parenti, of Minotola, New Jersey, goes him one better. On *his* farm, an electric motor and a thermostat open and close the windows as the temperature goes up or down. And when it rains? A sump on the rain gutter activates the switches and the windows go down to keep the litter dry.

You can't buy a window closer or an egg gatherer as yet, but the other equipment is being manufactured by the following companies:

A BUFFER type cleaner dry cleans the eggs.

Automatic Water Fountains

Automatic Poultry Feeder Co., Zeeland, Mich.
Brower Manufacturing Co., Quincy, Ill.
Buckeye Incubator Co., Springfield, Ohio
Cyclone Mfg. Co., Urbana, Ind.
Everyday Poultry Supply Co., Sidney, Ohio
Hayes-te Equipment Corp., Unionville, Conn.
H. D. Hudson Manufacturing Co., 589 E. Illinois, Chicago 11, Ill.
James Manufacturing Co., Fort Atkinson, Wis.
C. C. Jolly Co., Owatonna, Minn.
Keen Manufacturing Corp., Vineland, N. J.
Kitson Sales, Inc., Morley, Mich.
Miller Manufacturing Co., 251 W. Kellogg Blvd., St. Paul, Minn.
Oakes Manufacturing Co., Tipton, Ind.
Quinn Wire and Iron Works, Boone, Iowa
H. M. Sheer Co., Quincy, Ill.
Thompson's Peck-A-Drink, Hewitt, Texas

Automatic Feeders

Automatic Poultry Feeder Co., Zeeland, Mich.
Brower Manufacturing Co., Quincy, Ill.
Buckeye Incubator Co., Springfield, Ill.
Elkhart Welding and Boiler Works, Elkhart, Indiana.
Feed-O-Matic Co., 22 Monument Square, Portland, Me.
Graham Metal Products, Ltd., Preston, Ontario, Canada
Hayes-Te Equipment Corp., Unionville, Conn.
James Manufacturing Co., Fort Atkinson, Wis.
Keen Manufacturing Corp., Vineland, N. J.
Kitson Sales, Inc., Morley, Mich.
Oakes Manufacturing Co., Tipton, Ind.
Pruden Products Co., Fort Atkinson, Wis.
Reliance Metal Products, Morley, Mich.
H. M. Sheer Co., Quincy, Ill.
Standard Farm Equipment Co., River Ave., Lakewood, N. J.

Egg Washers

Brower Manufacturing Co., Quincy, Ill.
Everyday Poultry Supply Co., Sidney, Ohio
Keen Manufacturing Corp., Vineland, N. J.
Kitson Sales, Inc., Morley, Mich.
Otto Niederer Sons, Inc., Titusville, N. J.

Egg Graders

Brower Manufacturing Co., Quincy, Ill.
Keen Manufacturing Corp., Vineland, N. J.
National Ideal Co., Toledo 6, Ohio
H. M. Sheer Co., Quincy, Ill.

Roll Away Nests

Brower Manufacturing Co., Quincy, Ill.
The Cyclone Mfg. Co., Urbana, Ind.
James Manufacturing Co., Fort Atkinson, Wis.
Oakes Manufacturing Co., Tipton, Ind.
P. A. Radocy and Sons, Rossford, Ohio
H. M. Sheer Co., Quincy, Ill.
Storm Industries, Dassel, Minn.

Roost Cleaners

James Manufacturing Co., Fort Atkinson, Wis.
Keen Manufacturing Corp., Vineland, N. J.

THE ULTIMATE IN MECHANIZATION is the automatic, coin-operated roadside stand for selling the eggs. The farmer keeps the racks filled with cartons of graded eggs; occasionally he comes out to greet a customer and promote public relations.

Farm to Live—Live to F

Buying a Pickup truck?

Here's how to get the most fo

You don't buy a Pickup like you'd buy a loaf of bread or a tube of toothpaste!

A Pickup truck is no less a business investment than a factory lathe or a farm tractor. You buy a Pickup in the same way you'd make an investment.

The price of an investment is important! But the low price of a new Ford Pickup truck, for instance, is not the only reason why it gives you the most for your money. Nor is its high trade-in value as a used truck. And Ford Trucks certainly hold their value well over the years, as you can verify instantly, by checking the want ads in your local newspaper.

The important thing about a new Ford Pickup is that it gives you the biggest return on your investment *in the big ways* that truck savings can be made.

For instance, in six years' time, the average Pickup owner invests twice as much in gas, oil, repairs and maintenance, as he originally pays for his truck. And it is in the area of low running costs that the Ford Pickup begins to earn its rating as a "blue chip" investment.

Only the Ford Pickup offers a choice of *two* ultra-modern, LOW-FRICTION, high-compression engines . . . a new 130-h.p. V-8 and a new 115-h.p. Six. The short-stroke design of these engines permits them to develop more horsepower per cubic inch of displacement. Smaller displacement usually means less gas. Shorter piston stroke means less engine wear, longer life, less time in the shop, more time on the job.

Also, in six years' time, the average Pickup owner invests ten times as much in drivers' wages, license costs, insurance and other "fixed" costs. But these costs are "fixed" only in an accounting sense. They can be cut by time-saving delivery that spreads "fixed" costs over more deliveries . . . cuts cost per delivery.

Ford's time-saving characteristics are unequalled by any other Pickup. Power is an obvious time-saver. And Ford offers one of the most powerful engines in

Life insurance experts recently checked license registration records of 9,623,445 trucks involving all 5 leading makes... again proved Ford Trucks last longer. This is convincing evidence of rugged construction in Fords like the 6½-ft. Pickup shown.

your money!

any Pickup. But just as important are the facilities in America's most comfortable truck cab that help the driver save time . . . help him do a better job.

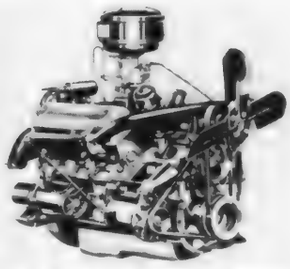
Ford's DRIVERIZED Cab offers more visibility, roominess and seat comfort than any other standard cab. It offers more glass area than any other standard cab . . . wider opening doors, wider seat, exclusive seat shock snubbers and non-sag seat springs among other notable features.

In the big ways to save . . . in time-savings and low running costs . . . in every way to save, including low initial price and high trade-in value . . . the new Ford Pickup for '54 brings you a big return on your investment.

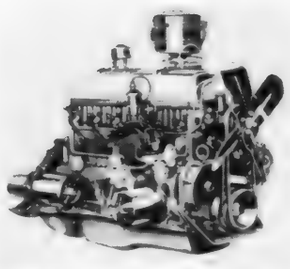
See your Ford Dealer, or write: Ford Division, Ford Motor Co., Dept. T-72, Box 658, Dearborn, Mich.

FORD *TRIPLE ECONOMY* **TRUCKS**

MORE TRUCK FOR YOUR MONEY



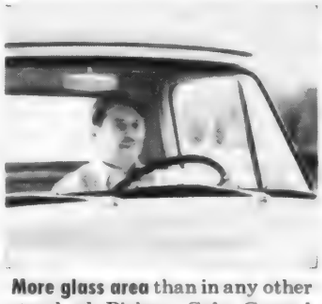
One of the most powerful engines in any Pickup . . . Ford's new 130-h.p. Power King V-8. Mighty concentration of power per cubic inch of displacement, too, for greater gas-saving economy.



Most efficient Pickup Six . . . Ford's new 115-h.p. Cost Clipper Six. Gas-saving, short-stroke, high-compression, overhead valve, deep-block design as in all five Ford Truck engines for '54.

Only Ford offers Power Braking in a Pickup truck, at worth-while extra cost. Power brakes make stopping up to 25% easier. Pressure needed to stop won't break an ordinary light bulb.

DRIVERIZED Cab! Only Ford has it! Big enough for 3 men. Wider opening doors, wider seat than any other truck cab. New woven plastic upholstery "breathes" like cloth for cooler seat.



More glass area than in any other standard Pickup Cab. Curved one-piece windshield is widest in any cab. Back window is over 4 ft. wide. Visibility unlimited for safer driving, easier handling.

Exclusive Ford seat shock snubbers soak up road shock before it gets to springs and cushion. Modern non-sag springs that retain resiliency, replace customary coils in the seat cushion.

FORDOMATIC saves time in stop-go work, cushions drive-line shocks, cuts maintenance. Ideal for off-road work because engine doesn't stall at low wheel speeds. Available at extra cost.

45 cu. ft. capacity . . . in one of the biggest bodies in the half-ton field. 6½ ft. long, 49 in. wide, no wheelhouse obstructions. Reinforced clamp-tight tail gate, with rubber anti-rattle strips.

$6500 PORTABLE IRRIGATION SYSTEM PAYS FOR ITSELF IN TWO SEASONS

These cattle are grazing in alfalfa that has been cut three times, yet provides sufficient pasture until the first of November—this in a year of severe drought.

Houston, Missouri—The Pinecrest Cattle Ranch of E. E. Romines has made outstanding gains in feed production with the use of portable irrigation with Alcoa® Aluminum Pipe.

In one year, Mr. Romines reports an increase of 2500 additional bales of hay—an increase in corn yield of 1300 bushels—enough good pasture for 70 head of cattle without the expense of extra feed. Mr. Romines says, "After two season of operation, the increase in yield, if sold, would have paid the entire cost of the system."

The Romines ranch uses a 2800-foot system to water 200 of its 800 acres. Two men at a time can handle three sections of pipe at one time in young corn and four sections at a time in grass.

Water is drawn from the Piney River with a maximum pumping capacity of 1300 gallons per minute.

Uses Superior Pipe

Backbone for the most reliable sprinkler systems is Alcoa Aluminum Pipe. The development of exhaustive tests, it is made from a superior, heat-treated alloy that withstands rough and continued usage. It needs no painting. Only one-third the weight of comparable steel pipe, it has a smooth inner surface that assures free-flowing performance at minimum pumping pressures. Available through leading systems dealers, Alcoa Aluminum Irrigation Pipe comes in diameters to suit individual system requirements. To identify pipe made to these rigid specifications, look for the blue and yellow Alcoa label on the pipe you buy.

Whatever your crop is,
Wherever your State,
To add to your profit,
Just irrigate.

FREE BOOKLET

Mail coupon below for Alcoa's *Pipelines to Profit* Booklet containing helpful facts on planning an irrigation system for *your* farm.

Member of SPRINKLER IRRIGATION ASSOCIATION

ALCOA ALUMINUM

Copyright 1954 Alcoa

ALUMINUM COMPANY OF AMERICA

2137-J ALCOA BUILDING, PITTSBURGH 19, PENNSYLVANIA

Please send me a free copy of *Pipelines to Profit*.

Name_____

Address_____

City_____ State_____

RABIES

(*Continued from page* 37)

would eventually put live virus—capable of causing rabies in animals—into the boy's blood stream. The kindly, grey-bearded scientist who had been ready to inoculate himself with the disease struggled with the problem all day long. Precious time was passing—but would the inoculations prevent the disease or would they cause it?

That evening Joseph Meister became the first human subject for the Pasteur treatment.

As the days passed and the inoculations grew more virulent, Pasteur slept little, paced the floor, dragging his lame left leg until he was exhausted. Madam Pasteur wrote to her children, "Your father has had another bad night: he is dreading the last inoculations on the child. And yet, there can be no drawing back now!"

At this same time, Pasteur wrote: "The last three inoculations have left some pink marks under the skin, gradually widening and not at all tender. There is some action which is becoming more intense as we approach the final inoculation which will take place Thursday, July 16. Perhaps one of the great medical facts of the century is going to take place."

On July 16, Pasteur inoculated Joseph Meister with a tissue broth virulent enough to give rabies to any of the animals in his laboratory. That night, when there was no more to be done, Pasteur was overcome with doubt and was sure that Joseph would die. Only gradually, as the days, then the weeks, and finally the months passed and Joseph remained in good health, did Pasteur realize that he had conquered rabies.

A modification of the preventive treatment which Pasteur discovered is being used to save lives today. It is not a perfect treatment and, in rare cases, has caused serious trouble, even death. Therefore, it is used sparingly and only when it has been definitely established that there is a strong probability of rabies infection. This is the reason that it is so important to catch the offending dog or cat or other animal and to hold it for a minimum of ten days to determine whether it actually has rabies.

Statistics on such accidents after treatment show that in 1 out of 10,000 cases the patient suffers from paralysis. Usually the patient remains paralyzed for a few days and then recovers completely: rarely, he dies. Because it is expensive, the treatment is not often used on animals.

What is used on animals—almost exclusively on dogs since they are the great spreaders of rabies—is a one-shot inoculation which immunizes them for a period of one to three years depending on the type vaccine used. This vaccine causes the animal to develop immunity to rabies thirty days after inoculation. It is not used on humans because, like the Pasteur treatment, it occasionally causes paralysis. A new formulation of this vaccine produced at the Lederle Laboratories by passing the virus through a series of chick embryos is

believed to bring about longer immunity and to be free of the occasional side effects.

This same laboratory has just announced a new chick embryo rabies vaccine for cattle which will be distributed through veterinarians. Where it took from 15 to 150 cc's of the old dog vaccine to immunize a cow for a year's time—which made it just too expensive to consider—the new vaccine will do the job for two years with a shot of only 5 cc.

The adoption of laws by every state making it mandatory to inoculate dogs every year would practically wipe out the disease. Some states have passed such laws; others leave it up to the counties, who leave it up to the towns. The result is that some towns pass rabies regulations, but the farm dogs in the country are not inoculated and keep the disease alive in the dog and wildlife population and among farm animals. Rigidly enforced laws would prevent such outbreaks of the disease as occurred in Central New York a few years ago and in the city of Chicago last year.

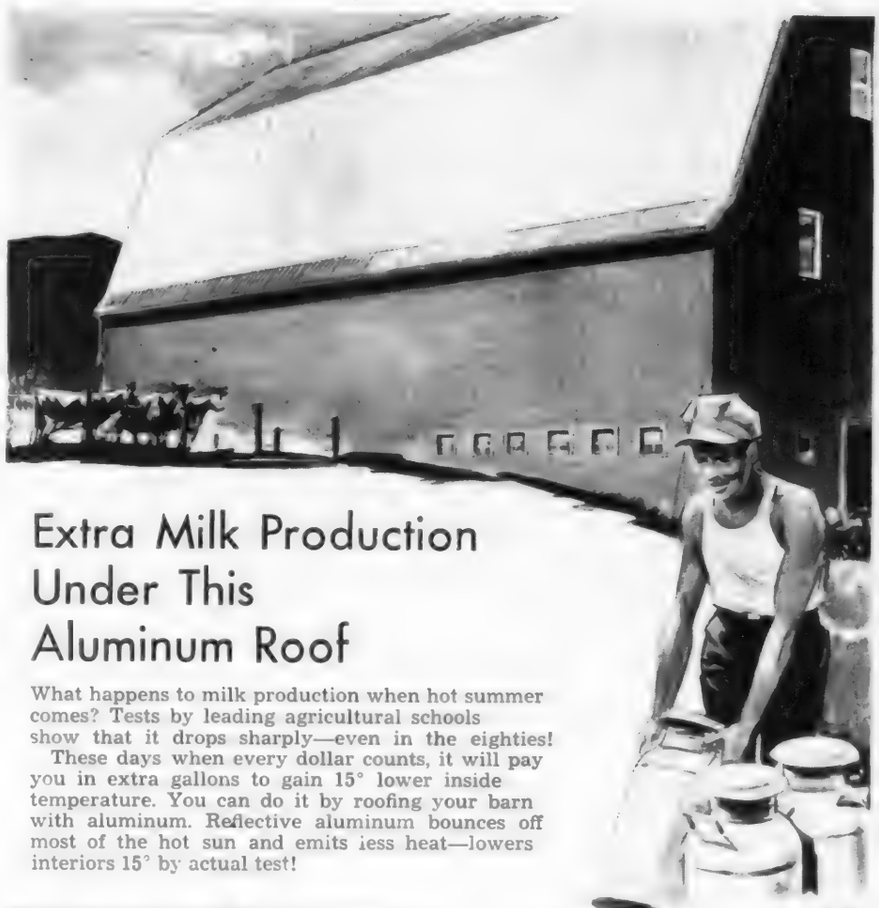
In Groton, New York, on a cold December evening in 1949, a veterinarian began receiving frantic telephone calls. The first was from a frightened woman. "What shall I do?" she said. "My dog has just been bitten by a wild fox. We must do something about him right away." She suspected that the fox might be rabid and believed that the bite would have an immediate effect.

An hour later another woman was on the phone—her terrified voice could be heard in the next room. What she described as a big, savage, grey cat had attacked her Pomeranian. She had fought the animal off with a broom while she maneuvered the dog into the house. The fox, for it was the same rabid beast, had torn all the straw off the broom as she backed away. This second attack had occurred about a mile and a half away from the first.

A few minutes later the fox ran among a group of boys playing under a street light, snapped twice at their dog. Then he doubled back through the village and bit a woman on the street. He sank his teeth into her ankle and hung on. She fell to the walk screaming and a companion beat the fox with her heavy purse until he let go.

A few moments later, he ripped the flank of a Beagle and disappeared into the shadows, leaving the village in a state of terror. That night the police and thirty men hunted the fox with shotguns. The next morning the school busses were followed by cars with armed men. Everyone feared that the animal would be attracted by the movement and noise of children and attack again.

That evening a woman, armed with a cane, was about to leave the house. Before stepping out, she turned on the porch light and was terrified to see the grey fox standing on her porch glaring at her. She screamed for her husband and he came running with his shot gun. She opened the door the merest crack to form a gun slit



Extra Milk Production Under This Aluminum Roof

What happens to milk production when hot summer comes? Tests by leading agricultural schools show that it drops sharply—even in the eighties!

These days when every dollar counts, it will pay you in extra gallons to gain 15° lower inside temperature. You can do it by roofing your barn with aluminum. Reflective aluminum bounces off most of the hot sun and emits less heat—lowers interiors 15° by actual test!

. . . and Extra Strength Built Into It . . . by Alcoa

Sixty-six years of leadership in aluminum makes *Improved* Alcoa® Aluminum Roofing your best buy. Stronger—holds better on the roof. Increased corrosion resistance—the highest of any roofing we have ever offered. Triple-inspected to bring you full value in every sheet.

Aluminum gives you high heat reflectivity—light weight—economy. To get the *best* in aluminum, send the coupon for facts on *Improved* Alcoa Aluminum Roofing and look up the Alcoa dealer near you.

NEW WIDER 48" Alcoa Roofing Sheet goes up with less time and labor. Fewer sheets needed to cover.

Improved
ALCOA
ALUMINUM
Roofing

ALUMINUM COMPANY OF AMERICA
2114-J Alcoa Building, Pittsburgh 19, Pa.

Please send me (free of charge — without obligation) the *Alcoa Farm Roofing Manual.*

Name_____

Address_____

City_____ State_____

New FARMHAND Feeders cut labor costs in half!

ONE-MAN FEEDING—Labor cost is the key to profits for beef and dairy operators! That's why so many farmers have turned to the Farmhand "Power-Box" Feeder . . . have built their entire feeding programs around this big, dependable, self-unloading unit. The 2-beater, front-drive Feeder shown above, Farmhand's newest 6-ton model, enables one man to easily feed over 500 head. Dry or green feeds are uniformly mixed and unloaded automatically with PTO power as you drive along. Unloads from belt-type cross-conveyor or optional elevator.

LOW COST 4-TON FEEDER with the same features, the same rugged durability as the 6-ton model . . . a smaller size with a low price tag. With both 4 and 6-ton Feeders you handle feeding and forage the easy way — from the tractor seat. At the blower, as shown above, the 4-ton Feeder with auger cross-conveyor and elevator, keeps blower operating at full capacity, with no spilling or plugging. The "Power-Box" is a multi-purpose machine for year 'round use. Mount Spreader attachment and you're ready for fast, big-load spreading.

Farmhand®

FIRST IN FARM MATERIALS-HANDLING

FREE Illustrated Booklets!

Write: THE FARMHAND COMPANY, Dept. 326
Hopkins, Minn.

☐ 4-Ton "Power-Box" ☐ 6-Ton "Power-Box" ☐ I am a Student

Name_____

Address_____

Town_____ State_____

A Division of SUPERIOR SEPARATOR COMPANY

and the fox tried to push his way into the house. The husband killed the animal with his second shot.

Fortunately, the fox's head was uninjured. The police cut off the head and sent it to the Cornell Diagnostic Laboratory where the brain tissue was examined under the microscope. Negri bodies in the brain tissue showed definitely that the fox was rabid.

But the rabies scare was far from over. A strange, rough looking cat bit a three-year-old child through the hand. A man loading gravel in an old gravel pit stopped work for lunch. As he was eating, a hungry, abandoned cat came up, mewing and begging for food. After he had fed it, the cat suddenly flew into his face and bit him on the cheek. It, too, was proved rabid.

From then on, farmers carried baseball bats, canes, or pitchforks when they went about their chores. These weapons, parked by this door or that, made it easy to locate the farm owner. People in the village carried umbrellas and canes and were reluctant to go out at night unless it was absolutely necessary.

The trick of recognizing a rabid animal early in the development of the disease is not always an easy one. The disease may, for no accountable reason, take the form of "furious" rabies, in which the animal is extremely active and dangerous, or "dumb" rabies, in which form paralysis sets in immediately. Many of us can still get goose flesh remembering the terrible creature our mothers pictured for us in her effort to protect us from "the mad dog." Each summer as the dog days approached the dread warning came, "Watch out for a dog that runs straight ahead. He doesn't turn to left or right, his head is down, slobber and foam come from his mouth, and his red, glassy eyes stare straight ahead. If you see a dog like that, run for your life. He's a mad dog, and this time of year there's lots of them around."

She was wrong about the dog days—but then so was most everybody at that time—for rabies is a year around disease. She was right, though, about the way a rabid dog travels. Soon after the onset of the disease if it takes the furious form the dogs seem to get an uncontrollable urge to run away. They characteristically run in a straight line, snapping at anything that disturbs them.

Often the first sign of rabies is a change in the temperament of the animal. A mean dog often becomes unusually affectionate for a time, a friendly dog turns mean. Then he begins to roam the countryside, biting anything that gets in his way. At first, he may appear normal. Later he grows thin and unkempt, and slobbers and froths at the mouth. This is caused by paralysis of the throat which keeps him from swallowing the saliva. Because of his constricted throat, his bark changes tone and becomes more of a howl. After a few days, he crawls into hiding, paralysis sets in, and he dies.

Dogs with dumb rabies become paralyzed very early. The major danger from them is that an owner, seeing them with their mouths open, unable to swallow, will think that they have a bone caught in their throat and attempt to remove it. Working with one's fingers in a rabid dog's mouth is inviting trouble. The thing to remember is that a dog which actually has a bone lodged in its throat will be trying to get it out with its paws as well as by coughing and strangling.

Rabid cows strain with an arched back and lifted tail and emit a periodic gruesome bellow. As the disease progresses, the bellowing becomes a hoarse roar, due to the paralyzing of the vocal cords and pharynx. A cow may butt trees, fences or the barn, until she shatters her horns. She often holds her head in an upright position and seems to be searching the beams. This progresses for about three days. Then she becomes completely paralyzed and dies.

Cats show fewer signs of the disease. They usually seek a dark corner to hide, but may spring on anything that comes near them.

Foxes, wolves, and coyotes, like dogs, often have a reversal of their natural ways. Foxes approach humans with no fear, and attack them. If hunted by dogs, they have been known to turn on the dogs and follow them into their kennels to bite them. The dogs seem to show an instinctive dread of rabid foxes, and will often refuse to follow them, preferring to slink home to security.

What to Do?

When an animal is suspected of rabies it should be penned up securely for at least ten days. Cages which would ordinarily hold the animal should not be considered safe: when rabies strikes them they exhibit maniacal strength and indifference to their own suffering. The heavy steel mesh of the observation cages at dog pounds are twisted and bent from the tearing and biting of the rabid dogs.

In handling the animal, heavy leather gloves and a heavy coat should be worn. The cloth of sleeves and pants legs helps protect against the entrance of saliva into a bite. The best way to handle a dog or cat suspected of rabies is with a pole which has a noose fastened to one end. In that way the noose can be slipped around the animal's neck and it can be held away from the handler. If a furious animal can't be captured and must be killed, care should be taken to shoot it through the body and protect the head. After death the head should be cut off, packed in ice or dry ice, and sent to the nearest public health laboratory where the brain can be analyzed.

Of course, the real problem is not how to handle a rabid animal, but how to stamp out the disease once and for all. This *has* been done in England, Ireland, Australia, Germany and several other countries and it *can* be done here.

The steps in completely overcoming the disease are simple. First, pass state laws making annual inoculation of all dogs mandatory. This is painless, and protects the dog as well as the community against this terrible disease. And it is worth repeating that over 85 per cent of all cases of rabies were spread by dogs.

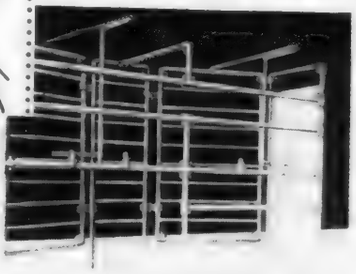
Second, eliminate all stray dogs and cats which have been abandoned by heartless owners to roam the country.

Third, reduce the fox population by community fox hunts. In Tennessee it was found that in 1953 foxes were certainly responsible for most of the 50 known rabies deaths among cattle.

Fourth, our own private wish would be that a criminal section be put in the rabies inoculation laws for the benefit of the crack-pots and would-be Annie Oaklies who plan to evade the law. Make the owner of a rabid dog, which has not been inoculated, liable to a charge of manslaughter in case the dog spreads the disease.

Even without such an extreme section, good laws and proper enforcement could make this a rabies-free country.

Get these NEW MILKING PARLOR PLANS



Learn how easily you can modernize your milking operation with these new milking parlor plans. They show how efficiently Louden's complete line of milking stalls fit any arrangement, with a minimum of remodeling or new construction required.

See how to cut your cost—increase profits. Send for this free book of Louden milking parlor plans and equipment. Write today.

THE LOUDEN MACHINERY CO.
329 S. Court Street, Fairfield, Iowa

LOUDEN
THE GRADE-A LINE OF BARN EQUIPMENT

"How Ya' Goin' To Keep It Down On The Farm?"...

The Best Way Is In BS&B "PERFECTION" GRAIN BINS!

One of the key provisions the farmer must meet in qualifying for Government price-support loans this year is that his grain must be stored in approved type storage facilities during the term of his loan. Even if this provision were waived because of the acute shortage of commercial grain storage facilities, the farmer would still have to bear whatever losses resulted from spoilage of his grain due to improper storage or keeping it out in the open. Such losses can be very severe.

But there is no longer any reason for incurring such losses... not when it is so easy and *profitable* for you to get BS&B "PERFECTION" Grain Bins for that extra "on-the-farm" grain storage you've been needing! This year ASC will loan you up to 45c per bu. or 80% of their total cost to buy them. This is on a straight 4% loan, not compounded, and is repayable in four equal yearly installments. In addition, you can take a five-year tax write-off on the entire cost of the bins!

BS&B "PERFECTION" Grain Bins are the lowest priced *quality* steel bins on the market today—and they last for years and years. They'll provide the safest possible "on-the-farm" storage for your crop! Better order yours NOW, while there is still time to get them up before the harvest! See your "PERFECTION" Dealer, or clip and send the coupon for more information!

Look for BS&B "PERFECTION"—
The Bin With The GOLDEN CROWN!

EFFICIENCY OVER 60 YEARS BS&B RELIABILITY
BLACK, SIVALLS & BRYSON, INC.
7500 East 12th Street Kansas City 26, Mo.

Only "PERFECTION" Has All 6 Quality Features!

1. **CORRUGATED CAP-TYPE VENTILATOR** fits over roof sections—an exclusive feature for extra protection from leaks and blowing.
2. **3-WAY VENTILATOR** can be bolted shut, adjusts to 1" opening for ventilation or is removable for 21" center filling. Corrugations match without adjusting.
3. **CANOPY ROOF** keeps rain and snow out. The curved, projecting "canopy" protects walls from eaves drippings. One section is removable for easy filling.
4. **CORRUGATED CONSTRUCTION** gives extra strength. Cadmium plated bolts and nuts resist rust. Heavy lead washers give tightest fit. Quick, easy to erect—no special tools or skill required; every part fits perfectly. Completely galvanized.
5. **ONE-PIECE DOOR FRAME** assembly has corrugated edges to match corrugated sidewalls for tight fit. No rubber stops or seals needed. Full 3-ft. wide door, 22 ga., double thickness. Frame is hot-dipped galvanized.
6. **24 GAUGE STEEL FLOOR** is made in 2 matching sections with sturdy splice plates. Mastic-sealed joints make floor vermin-proof!

Black, Sivalls & Bryson, Inc., Dept. 8-EA9
7500 East 12th Street
Kansas City 26, Missouri
Please send me complete information on BS&B "PERFECTION" Grain Bins.
NAME_____
ADDRESS OR RFD_____
CITY_____ STATE_____
PLEASE PRINT

FOX THE STANDARD OF COMPARISON

The FOX Forage Master with its easy quick-change units and its many safety features is not an experiment but a field proven, time tested machine with a record of over 20 years of outstanding performance on thousands of American farms. You can depend on the Fox Row Crop Harvester to handle successfully tall, short, broken down, and weedy corn and similar row crops. Does a good clean job even in corn borer infested areas and in muddy fields. The FOX is the Forage Harvester to which all others are compared. When you buy a FOX you are buying the best. **The Forage Harvester with the highest trade-in value.**

The Hay Harvesting Unit, like the other two units, can be changed to mower bar or corn silage harvester in less than 10 minutes by one man without tools.

The Mower Bar Unit cuts a full 5-foot swath and makes grass silage from the standing crop in one operation.

Write Today for the HISTORY OF MODERN FORAGE HARVESTING.

FOX RIVER TRACTOR COMPANY
The Pioneer of Modern Forage Harvesting
594 North Rankin Street
APPLETON FOX WISCONSIN

PENNSYLVANIA BARNS

(*Continued from page* 61)

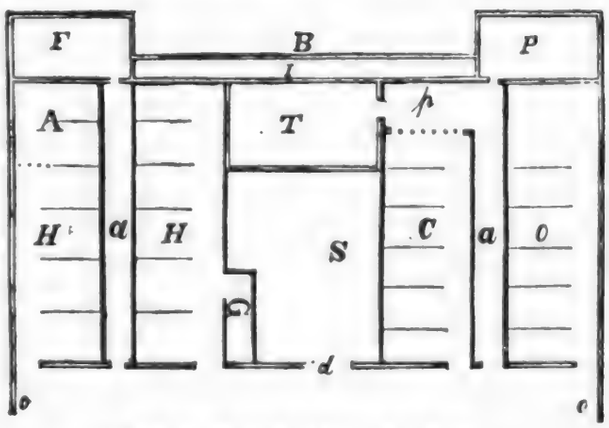
barn's appearance.

The designs were formed by laying the brick in such a way that openings the size of the end of a single brick formed the pattern. There is no evidence that the open work resulted in structural weakness. Some brick end barns 150 years old show no signs of sagging or weakness in or near the designs. A few rare builders incorporated designs in stone end barns, the designs being in brick set in the stone.

The Switzer Barn

By the middle of the nineteenth century barn architecture and design had been brought to a high state of refinement. Farm magazines devoted pages to comment on barns, and there were barn designers and experts in every community. One of the best farm magazines of the period, the *Pennsylvania Cultivator*, published a complete description of what was known as the Switzer barn, a design which closely followed the typical layout of the period. The description of the barn is prefaced by a bit of boasting, easily forgiven when one understands the pride with which Pennsylvanians viewed their fine structures. Here are the *Cultivator's* own words:

"However much before us in Agricultural Improvements generally, the Farmers of the States North and East of us may perhaps be, we claim for Pennsylvania the distinction of being the only State in the Union in which the building of good, substantial, convenient and spacious BARNS is understood and practiced. Properly speaking, in other States, *they have no barns* — they don't know what a real good barn is — a stable or collection of stables, sheds and out-houses being their makeshift substitutes for them. This is a little singular, but it is nevertheless true. A journey through New York and New England, will confirm our remarks. There is hardly a real barn to be seen. Evidences of plenty there are, and of excellent farming. You see good houses, beautiful shrubbery, admirable fences, clean and smooth fields, splendid cattle, plenty of *hay* and *grain stacks*—



The Switzer Barn and ground floor plan.

"My steel building is the most adaptable I've ever used"

says F. R. Adams of Lenexa, Kansas

MR. ADAMS has found a variety of uses for his 36′ x 60′ x 12′ steel building. "This new steel building is just the thing for machine storage," he says. "We can take any machine on the farm through those 20-foot-wide sliding doors. And my steel building is just right for livestock, too," continues Mr. Adams. "It's weathertight, easy to partition, and it's simple to keep clean."

Steel buildings give maximum, unbroken floor area because there are no upright columns in the middle of the floor. Machinery can be moved freely about without having to jockey around supporting posts. Furthermore, steel buildings are fire-resistant. And their sturdy construction resists the forces of strong winds and hard usage. No doubt about it—steel is the ideal material for farm buildings, because steel buildings give exceptionally long service at the lowest maintenance cost.

Farmers and dairymen will be the first to tell you—you get the most for your money when you invest in a Factory-Built Steel Farm Building manufactured with long-lasting USS Galvanized Steel Sheets for roofs and walls, and a USS Structural Steel framework.

● **When buying a Factory-Built Steel Farm Building, ask for USS Galvanized Steel for roofs and sides. This product has a certified galvanized coating produced to ASTM Specification A-361. This is your assurance of a high quality building.**

USS

Agricultural Extension Section
United States Steel Corporation
Room 4361, 525 William Penn Place
Pittsburgh 30, Pa.

I am interested in steel buildings for the following:

☐ machinery storage ☐ cattle shelters ☐ grain storage
☐ dairy barns ☐ hay storage ☐ poultry houses
☐ other .....

Approximate size or capacity.....

☐ **Please have a Steel Building representative call on me with further information.**

Send information to:

Name.....

Address..... **Town**.....

County..... **State**.....

United States Steel Corporation produces high-quality USS Galvanized Sheets and Structural Steel which our customers manufacture into durable farm buildings. Your requests for information will be forwarded to the manufacturers of these buildings, and you will hear directly from them.

UNITED STATES STEEL

When storms knock out highline electricity . . .

an ONAN Standby *Tractor-Drive* Generator supplies all the power you need!

When electricity is interrupted, nothing works *except you!* You lose time, and if it happens during milking, you lose milk production too.

You can avoid losses and keep farm work going smoothly no matter how long the highline is out, with an Onan Tractor-Drive Generator. Just belt up to any tractor and it will supply all the electricity you need for milker, lights, brooders, automatic heating system, home appliances, water system, and other equipment.

Install Onan Standby Power now and *be prepared for the next emergency.*

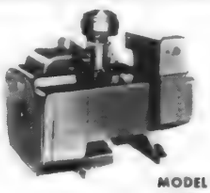
ONAN Tractor-Drive Generators: 3,000, 4,000, 7,000 and 10,000 watts A.C., 115/230 volts. Completely equipped with belt pulley, double-throw transfer switch, circuit breaker, plug-in receptacle and voltmeter, pivot base.

Gasoline-engine-driven Standby Electric Plants

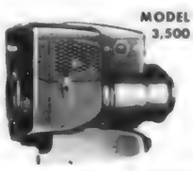
Where power interruptions or low voltage conditions are frequent, a complete gasoline-engine-driven standby electric plant is recommended. It can be equipped with automatic controls which start the plant when power is interrupted and stop it when power is restored . . . protects your farm at night or when you're away.

Air-cooled models: 1,000 to 10,000 watts A.C.

Water-cooled models: 10,000 to 50,000 watts A.C



MODEL 5CW
5,000 watts



MODEL 30SCK
3,500 watts

Install ONAN Standby Power...Before disaster strikes!

Send Coupon for Folder!

D. W. ONAN & SONS INC.
7053 Univ. Ave. S.E., Minneapolis 14, Minn.

Please send folder on Standby Power and information on installation.

NAME_____

R.F.D._____

CITY_____ STATE_____

and lots of sheds and stables: but *no barns.* They will have to come into Pennsylvania, and take pattern from some of our mighty bank-barns, looming out in the horizon like double-decked men-ofwar beside sloops, or like churches beside log huts. As in our war vessels, so in our barns also, we have both *single* and *double-deckers,* the latter being tremendous affairs, that would make our eastern brethren open their eyes in astonishment. Below we present the floor plan of one of the *singledeckers*—a most superb new Bank Barn, called a 'Switzer' barn, which was recently erected upon the farm of August O. Heister, Esq., on the Susquehanna, about three miles above Harrisburg. The engraving was made by Lowe, of Philadelphia, from a Daguerreotype by Barnitz, of Harrisburg.

"*Dimensions.*—We expected to obtain from the architect of this barn, Mr. Isaac Updergrove, a specification of its dimensions, etc., but have not received it, so we must do for the present with a brief and less detailed description. It is one of the best and most convenient barns on the Switzer plan, in this vicinity. It is about one hundred feet in length, by about sixty feet in width, and proportionately high. It is built on a small hill side, so that the front or barn floor is on a level with the ground: while the hill is dug away and the stables placed beneath. The rear of this stabling is likewise on a level with the ground, though some ten feet below the front level. The cut presents this rear view only. As will be perceived, the barn has an *overshoot* of seven feet, the stone wall being brought out flush the entire width, which is an improvement. The walls are eighteen inches thick, and rise ten feet up to the front level.

"The stone work is represented in the above plan [on page 80], by double lines. B is a false breast wall three feet deep, a foot or two before I, the real front wall. F is the feeding cellar, 10 feet by 20, where the feed for the horses is mixed and prepared. P is the potato cellar, 10 feet by 20, on the left hand. H is the stable for the Farm Horses only, and A is a double stalled division of the same, shut off from the rest of the stable by a lattice door, intended as an *hospital* or lying-in room for mares: The whole being about 15½ by 42½: *a* and *a* are the feeding aisles or passages, six feet wide. H on the right hand is another Horse stable, containing six stalls. Here strange horses are stabled. It is also 15½ feet by 42½; and the ox and cow stables on the right hand side, marked O and C, are of like dimensions. G is a little room 4½ by 15½, where harness is kept. S is the straw room, from which the cows in C can be directly fed. O is the stable for stock cattle. *p* is the passage to the turnip cellar. It is 7 feet wide, and separated from the cow stable merely by double-latticed doors, 6 feet wide. T is the Turnip cellar, 27 feet by 16. This and that for Potatoes and Feeding, have their floors well grouted—that is stones are broken fine, evenly spread, and liquid poured over them, which makes them rat-proof. The stable floors are treated in the same way. In each of the aisles marked *a,* there is a continuous range of feeding lockers on one side, in which oats, corn, or prepared feed may be kept ready for feeding at any time. In the passage marked *p,* are steps to ascend into the second floor. Hay is thrown down here, or through traps in the floor above the straw room: *d* is the 6 feet entrance into the straw room: *o, o,* is the stone wall projecting 7 feet, and supporting the overshoot. On the second floor are the conventional mows, granaries and driveway.

"The cost of this barn was about $1,500. It is weather-boarded on the outside—painted white—furnished with ventilators, lightning rods, and every minor improvement.

"This, briefly, is the description of one of the best kind of Pennsylvania barns, and one of the best of the kind. We shall give other engravings and plans, from time to time."

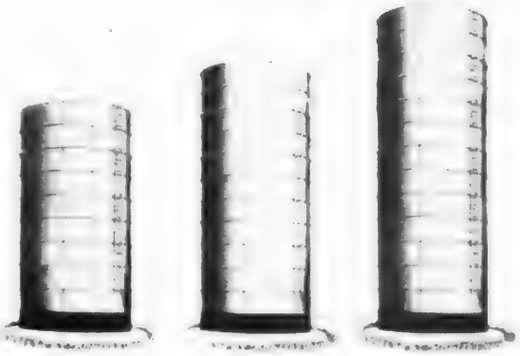
THE AUTHOR: Henry J. Kauffman is by way of being a "compleat man," as the Elizabethians put it. He has two college degrees in metal work and design, has taught school, been an instrument maker, has exhibited in The Metropolitan Museum and elsewhere, and writes on anything that catches his inquisitive eye. He was born on a farm, which accounts for his sympathetic treatment of barns. He lives in the center of the fine barn region, Lancaster, Pa.

Store in STEEL!

SILVER SHIELD

ALL STEEL SILOS

can grow with your needs

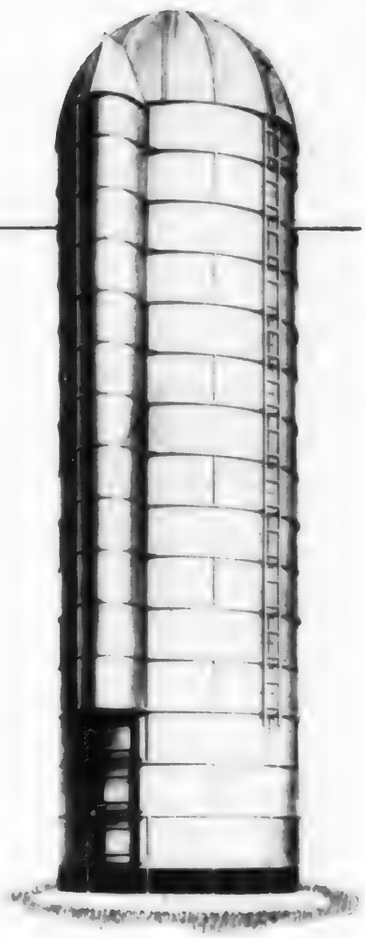


FIRST YEAR
13 COW CAPACITY

SECOND YEAR
15 COW CAPACITY

THIRD YEAR
17 COW CAPACITY

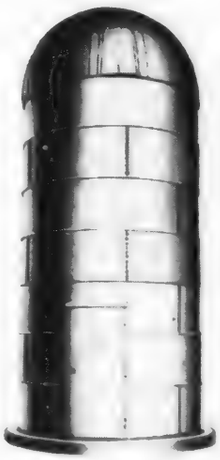
It's no longer necessary or practical to wait on herd growth before investing in a silo. The C & L Silver Shield Silo can grow to meet your yearly requirements, while you enjoy the benefits of feeding nutritious silage. You simply add rings as needed which increases height and capacity, and enables you to pay for the silo as it is used. Investigate this common sense solution to a silage problem soon.



FOURTH YEAR
20 COW CAPACITY

C&L BUCKEYE CORN CRIBS

Thousands of bushels of corn and grain are lost each year to rats and other rodents. The C & L Buckeye will protect you against these star boarders. All parts are sized to handle easily and are made from heavy gauge galvanized steel. C & L Buckeye delivers maximum protection at minimum cost.



C&L

Silo-Type GRAIN BINS

The C & L Silo-Type Bin is made of heavy galvanized steel silo sections. It can withstand severe pressures and is ideal for soy bean storage. Both door and grain chutes are designed to be installed in any desired location. All bins are sold complete with roof.

CLAYTON & LAMBERT MFG. CO.
Middletown, Ohio

Send for literature about . . .

Silver Shield Silo ☐ Silo-Type Bin ☐ Buckeye Corn Crib ☐

Name_____

Address_____

City_____

State_____

C & L Manufactures a complete line of Silos, Cribs and Bins

CLAYTON & LAMBERT MFG. CO.

MIDDLETOWN, OHIO

NEW Brillion Sure-Stand

gives a better "catch"–a sure stand

on 50% less seed

With its NEW features . . . its NEW low price, this NEW 8-foot Brillion Sure-Stand makes it possible for more farmers to enjoy the seed-saving, labor-saving advantages of Brillion's scientifically designed "Controlled-depth" seeding.

Brillion's "Controlled-depth" principle covers every seed within the top ½-inch of soil to assure higher seed germination . . . better seedling emergence. Seed isn't lost because of deep planting. It doesn't use up its natural food supply before it reaches the surface.

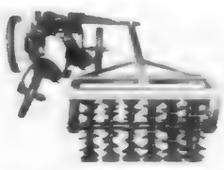
Part of the reason is the way the Sure-Stand finishes its own seedbed as it sows. It tucks every seed into a clod-free seedbed . . . close to moisture and nutrients. It crushes the lumps and clods left by once-over discing . . . presses out air pockets and firms the seeded field. This not only promotes crop emergence but also leaves your fields smoother — easier to mow, easier to drive over with chopper or baler and a loaded wagon.

Moreover, in the Brillion Sure-Stand with its 2" wheel spacing you have an excellent pulverizer to finish other seedbeds . . . on grain, soybean and corn land — to break soil crusts, to firm seeded fields, to prevent winter-kill.

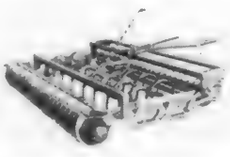
Your Brillion dealer has complete facts on this new seeder at a new low price. See him soon . . . take this first step toward better hay and pasture in wet or dry years . . . in poor or good growing seasons. Two models: 5 ft. 4 in., and 8 ft. seeding widths. For folder write, The Brillion Iron Works, Dept. SG-3-9, Brillion, Wisconsin.

Brillion
SURE-STAND GRASS SEEDERS
5'4" and 8' models

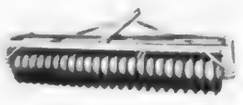
IF BRILLION MAKES IT, IT MUST BE GOOD



BRILLION PLOW PACKERS break down the furrow slice and gently firm the soil in one operation. Mulches soil to slow drying. Three sizes — for 2-, 3-, and 4-bottom pull-type plows.



BRILLION PULVI-MULCHERS crush both surface and buried lumps and clods in one operation. Cut discing and harrowing time. Dust-sealed roller bearings. Five sizes: 6-, 7-, 8-, 9-, and 10-foot.



BRILLION PULVERIZERS have the weight, strength, and durability for tough soils and loose conditions. Dust sealed roller bearings for fast tractor speeds. Sizes and types to suit all operations.

MAYAN FARMER

(*Continued from page* 50)

lived in the country near the great cities. A man's social position might be judged by the walking he had to do to get to the ceremonial center of the city. Maya cities were always built near water; the cenotes, big open wells, are always found near the ruins.

Maya society was made up of three classes: the farmers—workers who tilled the soil, harvested the crop, and built the cities; the priests who were astronomers, mathematicians, prophets, and masters-of-ceremony for the important occasions; and the nobility, who were also the ruling class, and from which the priesthood drew its members.

The ruler of each of the Maya city-states was called the Halach Uinic, or True Man. Below him was an elaborate organization of lesser magistrates and straw bosses.

The common man called on Chac, the rain-god, most often. He knew that if Chac was pleased, the corn would be drenched with rain at the right time. If Chac was angry, there were a number of ceremonies to be performed. In the Maya stone carvings, wall paintings in temples, and manuscripts, it can be seen that sacrifices of a human heart while it was still warm and beating was often thought of as the way to appease Chac.

Human Sacrifice

Whether such sacrifices took place is the subject of conjecture. Manuel Cirerol Sansores, the Yucatan archeologist, claims that the Mayas never sacrificed humans, that this myth was an invention of the Spaniards.

What was the secret that the Mayas had discovered that enabled them to be so far ahead of the rest of the world in learning, building, and so many of the arts? It was the same secret that has made the United States the best-fed country in the world and one of the reasons why we are the most prosperous. The Maya maize did it. Even in the ancient days, with crude stone tools, the Maya could raise all of the corn he needed for his family use in two or three months. Leisure time meant time for thinking and study, and an educated class emerged. For the working man, the corn farmer, the other nine or ten months of his time during the year were organized by his superiors to build massive palaces, pyramids, temples in both the Old and New Empire periods. After the Spanish came, they saw to it that he devoted his extra time to building great stone churches and public buildings. Today he may spend his spare time working in the rocky hemp fields which require the same work with his capable machete as the brush cutting and clearing needed for corn-raising.

In each of these periods of history, the Maya has lived in the same wooden huts

WARNING!

Serious Outbreaks of HOG CHOLERA May be Ahead

Safeguard your pigs!
Safeguard your profits!

Vaccinate with
ROVAC

HOG CHOLERA VACCINE*

Lederle

ROVAC gives solid, dependable immunity against hog cholera. ROVAC cannot cause hog cholera, because it is a truly modified vaccine — over 300 rabbit passages removed from disease-producing hog cholera virus! ROVAC cannot perpetuate hog cholera on your farm.

These are other advantages of vaccinating a herd with ROVAC:

1. A single injection of ROVAC in healthy pigs gives at least two years' immunity.
2. Serum is not required with ROVAC if pigs have not been exposed to hog cholera just before, at the time of, or immediately after, vaccination.
3. ROVAC can be used with serum, however, if immediate immunity against hog cholera is required. *This will not affect the immunity induced by ROVAC.*
4. Saves time, saves labor, saves money!

Make it routine to vaccinate your pigs with ROVAC!

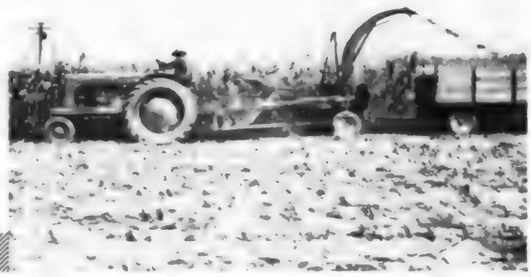
Consult your veterinarian for best management practices and for disease-control procedures.

*Full name of product is HOG CHOLERA VACCINE (Modified Live Virus) Rabbit Origin — Vacuum-Dried ROVAC. U. S. Pat. No. 2,518,978.

LEDERLE LABORATORIES DIVISION

Pearl River — AMERICAN Cyanamid COMPANY — New York

Custom operator uses SD-4 on harvester . . . saves the cost of operating 4 tractors for over half a day



fills 12′ x 35′ silo in 3 hours

with Sheppard Diesel SD-4

Available with row crop, single wheel or adjustable wide front end

10 Speed Transmission
Simplified Fuel Injection
22 to 1 Compression Ratio

With the power of the New Sheppard SD-4 to double the speed of his forage harvester, this operator was able to finish a job in 3 hours that formerly took over a full day. Since 3 other tractors were in the field hauling, fuel and operator cost savings added up fast when time for the complete operation was cut to less than half.

By introducing row-crop flexibility into its power class, the New Sheppard SD-4 provides needed power without heavy investment in a machine of limited use. With row-crop flexibility and simplified diesel operation, the New SD-4 can be used profitably on any job throughout the year. Because it costs less to operate than a medium size gasoline tractor . . . yet does twice the work . . . the New Sheppard Diesel SD-4 provides the extra power you need at an operating cost you can afford.

Sheppard DIESEL SD-4

Here's a 20 H.P. DIESEL for heavy duty service.

Ideal replacement power. Fits same space as gasoline engine of equal rating. Saves 75% on fuel costs. Check coupon for folder.

MAIL COUPON FOR FOLDERS

SHEPPARD DIESELS • Hanover, Pa.

Please send folders on Sheppard Diesel
SD-4 ( ) SD-3 ( ) 20 H. P. DIESEL ( )

*Name*_____

*Post Office*_____

*R. F. D.*_____ *State*_____

I farm_____acres. I am a student ( )

DEALERS: Check here for profitable franchise ( )

with the same straw roofs, eaten maize for 75 per cent of his diet, raised some beans and vegetables and picked his native wild fruits. He has had very little schooling (up to the sixth grade is compulsory in Mexico today, but the law closes its eyes in rural areas). Today the minimum wage in the hemp fields is 10 pesos a day, and this leaves him little for the luxuries of life.

To make a little extra money, the Maya wife can make a bundle of the tomatoes and vegetables her husband raises, and catch the early (3 a. m.) bus for Merida or Ticul or any of the country towns. In the market-place, the produce is piled up in neat pyramids on the sidewalk. During the cool, early morning hours, the city housewives come here to shop.

The First Corn Farmers

It was corn, the favorite crop of the Maya that lifted him up to the heights of a great civilization — and then let him down. Some experts point to the highlands of Peru as the first home of the crude ancestors of our present-day corn. Based on the number of varieties of Indian corn being raised in these highlands today, this might seem logical. Other experts believe that our corn descended from a grass called teosinte and point to western Guatemala and the Mayas as the developers of corn.

In 1953 three botanists—Associate Professor Elso S. Barghoorn of Harvard University, Miss Margaret Wolfe of Radcliffe College, and Mrs. Kathryn Clisby of Oberlin College—working in cooperation, found conclusive evidence of corn's North American origin with the discovery of relatively unaltered grains of corn pollen at a depth of 220 to 230 feet below Mexico City. These grains were at first thought to be those of the native grass teosinte, but have now been identified as true maize. Based on estimates of the time during the last glacial period, these scientists consider that the Mexico City corn pollen is between 50,000 and 60,000 years old. This is many thousands of years older than any known agriculture in North America, and also older than any as yet discovered trace of man in the western hemisphere.

The botanists point out that the fossil corn pollen indicates that corn has not undergone as much evolution as experts have previously thought. The ancient corn pollen compares quite favorably in size with many modern varieties.

The Mystery of the Mayas

Some soil scientists believe that the Maya nation fell apart because the farmers had no form of soil conservation. It is easy enough to use the decrease of the population of the Maya from 20 million to 2 million and the fall of the Maya from the world's most cultured people to simple Indian farmers as a finger-shaking sermon on the subject of soil conservation. Earthquakes, climate change, disease, civil war, the conquest of the Spaniards, political

Test shows:

"23 lbs. feed saved per 100 lbs. of pork"

Max Bailey, of Ames, Iowa, tells how he boosts profits with hog shelters of

REYNOLDS *Lifetime* ALUMINUM

Save with new 48-inch wide Corrugated and 8-V Crimp...50% fewer sheets to handle, 50% less metal at side laps.

Here's the story of Mr. Bailey's actual test: "I put 77 hogs under aluminum, 77 under shelters made of other material. I was amazed at the savings I made. The hogs under aluminum required only 358 pounds of feed per 100 pounds of gain—the other, 381 pounds. Total savings under aluminum were 30 bushels of corn and 600 pounds of protein. With my extra profits the aluminum pays for itself in one year."

Experts back up Mr. Bailey. Aluminum reflects up to 95% of radiant heat. Saves on maintenance, too... rustproof, no painting. And you can build now at less cost than ever, with new 48" wide sheets of Reynolds *Lifetime* Aluminum. **Reynolds Metals Company,** Building Products Division, Louisville 1, Kentucky.

Only 25¢ for this Hog Shelter Plan. Check Coupon for this or other plans listed... prices include detailed drawings, erection instructions and material lists. Or check for FREE information.

Reynolds Farm Institute, P. O. Box 1800, Louisville 1, Ky. 2027

I enclose $_____ for plans of buildings checked.

☐ Please send FREE literature on buildings checked.

☐ 52' x 60' Pole Barn	$1.00	☐ 1,500-bird Laying House	$1.00
☐ 26' x 60' Machinery Center	1.00	☐ 10,000-bird Broiler House	$1.00
☐ 30' x 32' Corn-Crib	.50	☐ 14' x 20' Hog, Sheep Shelter	.25
☐ 8' x 10' Range Shelter	.25	☐ 16' x 20' Cattle Shelter	.25
☐ 26' x 60' Pole Cattle Shed	1.00	☐ 12' x 20' Farrowing House	.25

NAME _____

ADDRESS _____

CITY _____ STATE _____

FARM INSTITUTE

Reynolds also serves the farmer with Aluminum Reflective Insulation, Gutters, Windows, Cable (ACSR), Portable Irrigation Pipe, Siphon Tubes, Paint Pigment, Freezer Foil.

SEE "MISTER PEEPERS," starring Wally Cox, Sundays, NBC-TV Network.

Jamesway

POWER CHORING

Feeds his Cattle

Yes, cattle feeding is a simple, one-man job with this new, low-cost Jamesway Feeder. You can feed your beef or dairy cattle by just pushing a button. Patented Shuttle-Stroke action delivers *any* dry feed or silage. Does the job without chains or gears in the bunk. Folding metal paddles, hinged to a single steel bar, do the entire job. Assure years of trouble-free operation. Fully proved in feed lots the country over, Jamesway Shuttle-Stroke Cattle Feeders bring a degree of feeding ease and efficiency never before reached in modern livestock production.

See this and other Power Choring equipment at your Jamesway dealer's now. Let him show you how Jamesway's complete line of stalls, pens, windows with Power Choring equipment gives you the most efficient, low-cost and sanitary dairy layout available. For free folders, write the JAMES MFG. Co., Dept. FO-954, c/o your nearest branch office.

Power Choring from silo to bunk

Team a Shuttle-Stroke cattle feeder with a Jamesway Silo Unloader for the greatest labor-saving combination on your farm. This rugged unloader handles any silage — grass or corn, frozen or unfrozen. Breaks up chunks . . . improves palatability. Prevents accidents. Makes the entire job a push-button operation.

Jamesway

Ft. Atkinson, Wis. Mount Joy, Pa. Los Angeles 63, Calif.

Silo Unloader Power Ventilation Mechanical Poultry Feeder Pressure Waterer 6-Hole Feeder

FIRST IN POWER CHORING

corruption, and the law of diminishing returns as the population became greater and the corn fields became more difficult to find: all of these theories have been investigated, and no one has been able to prove conclusively that any one of these or combination of several was the cause of the Maya downfall.

Sylvanus Morley, in his book based on his 40 years' study of the Mayas, "The Ancient Maya," says that only the failure of the Maya agricultural system can account for the fall of Mayas.

A logical explanation for the failure of the Maya crops seems to be that the chopping, burning, and planting made the land easy prey for the dense tropical grasses and weeds which smother everything in their rampant, year-around growth. The Mayas had no tools for getting rid of these weeds. The Mayas abandoned their cities in Guatemala and moved northward to Yucatan, over a period of several hundred years. In each area they built massive temples and erected monuments. Always they looked for new corn land. The end came when they were caught in the pincers in Northern Yucatan, a relentless nature on one side and the Spanish conquerors armed with gunpowder on the other side. By the year 1546, the Mayas as a great nation were finished. Today the rocky soil supports the small population of Yucatan in reasonable comfort. There are two million people, most of them Maya farmers like Juan Caamal; the others are of Spanish descent.

Today Yucatan is still isolated from the rest of the world as it was in the days of its great civilization. Only by air or by sea can one reach the province of Yucatan. Pan American Airways flies the 525 miles, due south from New Orleans to Merida, the capital of Yucatan, in less than three hours. Neither railroads nor roads from the other states of Mexico cross the mountains and swamps that lie between them and Yucatan.

In the Yucatan Peninsula, an area smaller than the New England States, an exciting chapter in the history of North America took place, one of the most important chapters for Midwest corn farmers. Here is a historical precedent for the importance of keeping agriculture strong. Today more than three-fourths of the United States farmers grow corn. Unlike the Maya, we don't eat much of our corn directly, but our abundant meat supply and many other products are made possible by its food value. It is still the All-American crop. If it is grown sensibly on land that can support its heavy withdrawals of plant foods and if these are put back in the soil, we can continue to count on corn as our basic cereal. As of today it is the most efficient converter of sun, rain, and soil into food.

If the Midwest farmer's wife gets to feeling neglected during the corn season, she can gain some comfort from a 16th century manuscript, which contained the

This motor and control puts more meaning into your irrigation system warranty

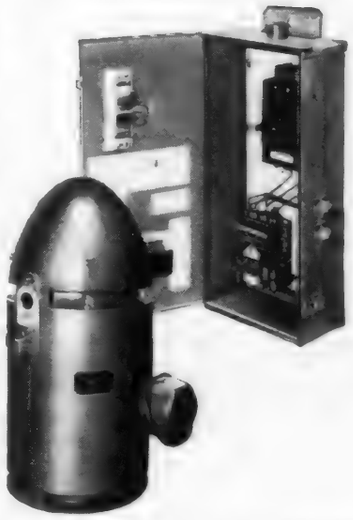
Your reputation is at stake every time you issue an irrigation system warranty. Your engineering calculations may always be correct. But what about the equipment you install?

Westinghouse Turbine Pump Motors and Controls are designed to withstand the gaff of the toughest pumping cycles . . . to operate in the most inclement weather. And they are practically maintenance-free; time spent by the farmer for servicing is cut to a minimum.

Top performance is only part of the Westinghouse story. Backing up each Westinghouse Motor and Control you install is a vast network of repair plants, spare parts warehouses and application engineering offices. Their services are at your disposal.

For the full story on what Westinghouse Motors and Controls can mean to the irrigation systems you install, send the coupon below.

J-21857



YOU CAN BE SURE...IF IT'S Westinghouse

I'm interested in the Westinghouse Turbine Pump Motor and Control.

☐ Please send me descriptive booklet: Section 3830.

☐ I would like your representative to give me the facts firsthand:

Name_____

Address_____

City_____ State_____

West of the Rocky Mountains —Send coupon to Westinghouse Electric Corp., 410 Bush St., San Francisco 8, Calif.

East of the Rocky Mountains —Send coupon to Westinghouse Electric Corp., 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pa.

VOGEL PATENTED

FROST-PROOF HYDRANT

- Will never freeze when properly installed.
- Provides complete fire protection by assuring running water even in coldest weather.
- Guarantees adequate water supply for live stock.
- Over a million Vogel Frost-Proof Valves have been sold.

The handle in this position shows at a glance that the water is positively shut off and is your guarantee against leakage and freezing.

VOGEL PATENTED

No. 4 FROST-PROOF CLOSET

Will never freeze. A great convenience when installed in an outbuilding or on a rear porch of a residence.

A real water saver. Vitreous china bowl is durable and easy to keep clean and will never freeze. No mechanism in tank to get out of order.

JOSEPH A. VOGEL CO., Wilmington 99, Delaware

Joseph A. Vogel Co.
Wilmington 99, Del.
Please send information on Vogel Frost-Proof Closets and Frost-Proof Hydrants

NAME .....

ADDRESS .....

TOWN ..... STATE.....

MAKE THE GRADE

TERRACING • GRADING • LANDSCAPING • DITCHING
SCRAPING • BACKFILLING • SNOW REMOVAL

Cut time, save labor, slash costs on every earth moving operation with the world's most versatile blade. One man operates hydraulic controls from tractor seat. Blade raises, lowers, tilts, angles, even turns clear around so you can push with it. Heavy duty construction. Quick, easy installation. Tested and approved by tractor manufacturers.

WRITE FOR LITERATURE pertaining to your model tractor.

Manufactured by

DANUSER MACHINE CO.

505-09 East 3rd Street • Fulton, Missouri

"Contributing to Farm Mechanization"

observations of a Spanish monk, about the corn farmers of Yucatan. He wrote:

> "If one looks closely he will find that everything the Mayas did and talked about had to do with maize: in truth, they fell little short of making a god of it. And so much is the delight and gratification they get out of their corn fields that because of them they forget wife and children and every other pleasure as if their corn fields were their final goal and ultimate happiness."

SELF-FEEDING BARNS

(Continued from page 69)

One variation of this basic building is a three-sided pole building which can be used to store and self-feed hay and also as a shelter for the livestock. Two such buildings, designed by the Doane Agricultural Service, of St. Louis, Missouri, have been put up by Tony Sazma, of LaSalle County, Illinois, and the Ward brothers, of Mahaska County, Iowa, for feeding beef cattle. In these barns, the space next to the rear wall has been partitioned off with picket fencing into a self-feeding hay storage section: the front end of the building is for shelter. A building 52 feet long and 18 feet deep can handle 40 to 50 head of beef cows or 60 to 90 yearlings together with 90 tons of baled or chopped hay. With a self-feeding hay rack in a barn designed to permit easy cleaning with a power scoop, one of the Ward brothers commented, "This barn saves labor on both ends of the cow."

Labor saving is probably most needed by dairymen who spend 125 to 200 hours per cow each year when the herd is stabled in the conventional, individual-stall barn. With loose housing, self-feeding for hay, and milking parlor, some farmers claim they have brought this labor load down to as low as 60 hours per cow. On a dairy farm in Vermillion County, Illinois, run by Art Winters, a self-feeding hay storage building is located between the loose housing barn and the milking parlor where it can be fenced off from the cows or opened to them after they have been milked. With this convenient arrangement, Winters is able to care for and milk between 30 and 40 head of cows single-handed. Last spring Winters milked 32 head of Holsteins which were turning out over 900 pounds of milk a day. All of the buildings on this farm do their share in cutting labor, but none more than the self-feeder.

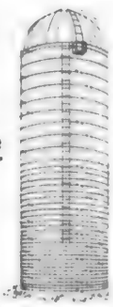
One Building Does Three Jobs

An interesting and useful variation on the pole-type self feeder is a building for feeding young dairy cattle, dry cows, or, for that matter, beef cattle and sheep which also serves as a hay storage building and is

ONLY CRAINE LETS YOU...

Choose the SILO that fits your Farm

- Tile Stave
- Tile Block
- Concrete Stave
- Triple Wall
- Wood Stave



Get the facts...

...on this complete line of Craine Silos—see why one of the Craine "Famous Five" is best for your farm, your feeding problems. Write for free illustrated booklets and prices—learn how easily you can own a Craine Silo—pride of any farm!

CRAINE, INC. 954 CEDAR STREET NORWICH, N.Y.

CRAINE SILOS

Latest Seeds from Scotts

Scotts QUALITY SEEDS

Always first with new varieties for better, more profitable farming. Keep informed through CROP NEWS and VIEWS . . . . a post card starts your FREE 2 year subscription.

Scott FARM SEED CO.
Locust Street
Mechanicsburg, Ohio

NEW Land Clearing Tools Remove Trees, Brush F-A-S-T

The proven best and cheapest method of clearing trees up to 12" base diameter and all brush is with the Johnson GRUBBING TONGS. ALL TREES — Maple, Beech, Locust, Willow, Sycamore, Oak, Spruce, Hemlock, fruit trees, etc., come out easily, quickly, permanently — ROOTS AND ALL! No pick or mattock necessary. Hook the TONGS around the growth and pull. No freezing or slipping. Heavy steel construction. Better than bulldozing or log chains. Every farmer needs one. If your dealer cannot supply you, order from us. PERFORMANCE GUARANTEED OR MONEY REFUNDED. Send check, M.O. No C.O.D.'s. Write for folder.

MODEL 52 (Trees up to 5" Dia.) use with any tractor. Wt. 19 lbs. **$9.85** ea. Add $1.45 P.P. & Ins. West of Miss. $1.95

MODEL 121 (Trees up 12" Dia.) For larger than 5" trees requires tracklayer (Crawler) or half-track tractor, or wheel type with 10,000 lbs draw bar pull. Wt. 36 lbs. **$19.75** ea. Shipped Express Collect

RE-BO MFG. CO. 329-B Madison Ave. New York 17, N.Y.

used as a hay dryer. The building which has been in use on an experimental basis for two years on the Dairy Science Farm of the University of Illinois, not only saves labor in handling hay, but takes the gamble out of haying during the rainy summer months and produces top quality hay.

Creosoted poles having six-inch tops were set four feet in the ground and tied together with two-by-six stringers and braces. The poles supported a conventional roof which was covered by aluminum sheeting. After the framework was completed, snow fencing was nailed on the inside of the supports to form the siding.

To build this structure, which is 20 by 24 feet in area, they used 12, 16-foot creosoted poles, 920 board feet of 2 by 6 for stringers and rafters, 248 board feet of 1 by 4 strips as nailers for the roofing, 8 squares of aluminum roofing, and 300 lineal feet of 4-foot snow fencing to close the building in. About 300 board feet of lumber were used to enclose the gables and make a door. Naturally, prices of material will vary from place to place, but in Central Illinois this one was built for $575 for materials.

While the building is comparatively small, it holds 18 tons of chopped hay. It is located on a well-drained site on the far side of the exercise lot. Building it some distance from the barn was deliberate, partly as a safety measure in case of fire, and partly so that other units may be added. One new unit will give an L-shaped arrangement to provide wind protection on two sides. A third unit will complete a U-shaped structure with a well-protected central feeding and exercise lot.

Alfalfa which has been partly cured in the field is picked up with a forage harvester-trailer wagon outfit. The wagons are factory-built with a metal slat and chain self-unloading device operated by power take-off from the tractor. Thus no hand labor is used in storing the crop except that of one man who regulates the flow of the chopped hay into the blower elevator. By adjusting the hood on the blower pipe, the building is filled to capacity without anyone working inside.

To insure thorough curing and high-quality hay, a portable crop drier is put into operation soon after a few loads of hay have been stored. The heated air is blown through a slatted A-frame which rests on the ground and extends to within 4 feet of the end of the building farthest from the drying unit. The A-frame tapers slightly in size, the far end being smaller, so that it can be pulled from the building by a tractor as soon as drying is completed. In this way, one A-frame can serve more than one unit.

The assistance given to the curing process by artificial heat, using furnace oil as fuel, helps to produce a green, leafy, high-quality hay. This procedure also makes it possible to store the hay within a few hours to a day or two after cutting. With second-crop alfalfa, part of the crop was cut with

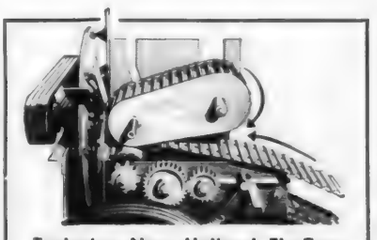
New PTO Forage Harvester with row crop attachment can chop and load up to 24 tons an hour in the tallest stands.

NEW harvester covers your fields up to 50% faster!

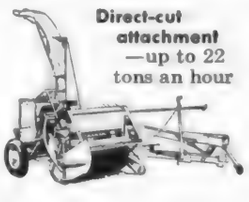
New Holland's new Forage Harvester chops and loads up to 24 tons of corn silage an hour!

The new 6-knife flywheel on New Holland's Harvester lets you increase ground speeds as much as 50% . . . gives you a choice of cutting lengths ranging from ¼" to 4¼".

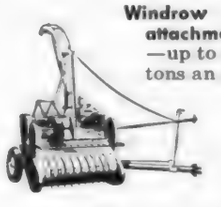
See your New Holland Dealer for a complete line of engine-powered and power take-off harvesters with quick-change attachments. He's your Grassland Farming Headquarters. The New Holland Machine Co., a subsidiary of The Sperry Corporation.



Exclusive New Holland Flo-Trac Feed prevents slippage of material right to the 112 sq. in. throat opening. Upper apron is fully floating front and rear to keep constant control of light or heavy material for even cutting.



Direct-cut attachment —up to 22 tons an hour



Windrow attachment —up to 22 tons an hour

New Holland Forage Blower —up to 36 tons of grass, 48 tons of corn an hour

NEW HOLLAND

"First in Grassland Farming"

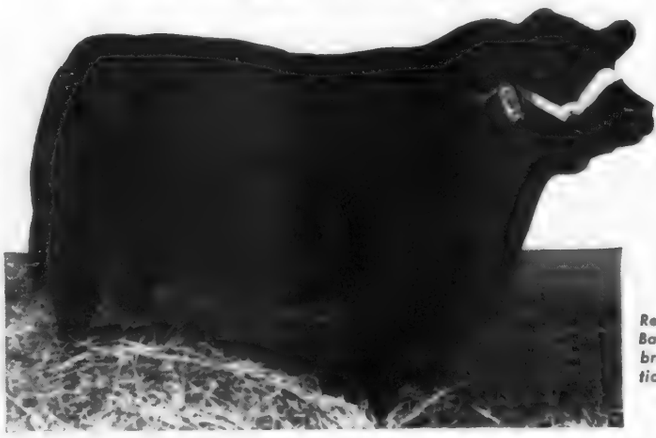
FREE BOOKLET! We'd like to send you a new booklet, "How to make silage in stacks and trenches," that gives complete information on the use of silos in making silage. For your free copy, write: New Holland Machine Co., 909 Maple Street, New Holland, Pa.

Name_____

Address_____

Town_____ State_____

Brought top price at Ohio Angus Sale



Reserve Champion Bardoliermere GB 10th, brother of International Grand Champion

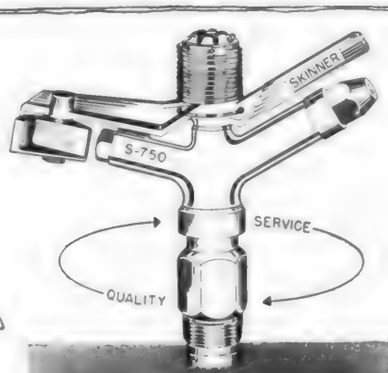
Famous Angus Herd is Fed Sacco V-19

Gallogly Brothers, Chandlersville, Ohio, have been raising purebred Angus since 1937. They show at many fairs and have had the champion heifer at the Heart of Ohio Show and Sale for each of the previous 4 years. Their entry this year won the award of Reserve Champion Bull and was the highest selling individual at $3500. The new owners: Harland Martin and Emerson Evans of Galliopolis. They know that good breeding and good feeding pay. You'll profit, too, by feeding Sacco V-19.

THE SMITH AGRICULTURAL CHEMICAL CO.
Plants at Columbus, Ohio; Indianapolis, Ind.; Saginaw, Mich.; Holland, Mich.; Carey, Ohio.

SACCO V-19 MINERAL FEED

Rain ...at the turn of a valve with—



SKINNER sprinklers

Why have Skinner Sprinklers become so popular?

More farmers every day demand, buy, and use Skinner Sprinklers because they can depend upon their long life and trouble-free operation—their water distribution pattern is the best for scientific crop growth.

Always insist on Skinner Sprinklers. You simply can't buy better crop and pasture insurance.

Write today for full information

The SKINNER IRRIGATION Company
200 Canal St., Troy, Ohio

SKINNER for over a half century

the mower in the morning and stored in the afternoon of the same day. Thus there was little loss of the nutritious leaves.

Last year six loads of hay were put into storage the same day the crop was cut with the mower. The moisture content of this hay was 40 per cent. In Illinois and other humid sections of the country, 20 per cent moisture is the maximum amount for safe storage unless forced ventilation or artificial drying of some type is used. Four loads stored the next day after cutting had 31 per cent moisture while in three loads which remained in the field from Friday to Monday the moisture was down to 23 per cent and the feed value was down too. The large volume of heated air which was blown through the entire mass of hay during the week-long drying period reduced the moisture content considerably below the 20 per cent danger point and a leafy, green, highly-nutritious product resulted.

When the winter feeding period began, the fencing at the end of the building from which filling was done was rolled back and a dozen yearling heifers helped themselves. A movable feed rack covering the entire open front prevented the heifers from pulling hay underfoot. Occasionally it was necessary for a man to loosen the settled hay and work it down close to the feed rack, but most of the heavy handling was done by the heifers. At intervals, the rack was pulled ahead by means of a wire cable which had been attached before the hay was stored. In this way the entire amount of hay in the building was fed with a minimum of labor. Better feed reached the heifers because they cleaned up all the leaves—none were lost in moving the hay.

It would be quite possible to operate a building twice as long, or even three times as long, and force ventilate the hay alternately from one end of the building and then from the other. The width, however, should not be more than 20 feet since the forced air will not easily pass through more than the eight-foot thickness of hay which lies on either side of the A-frame. (This frame is 4 feet wide at the bottom and about 4 feet high.) When the building is filled with chopped hay to a height of 12 feet, there is a layer of hay 8 feet thick above the A-frame. This is about the upper limit for safe curing.

In the process of haying, storing, and feeding, this building has cut labor in two as compared to the old-fashioned way. It isn't the final answer because we are always looking for still better ways to do things. It is, however, a big step forward in cutting labor and building costs, and the costs of getting hay into the hayburners.

THE AUTHOR: Dr. William B. Nevens was brought up on an Illinois dairy farm where caring for cows was a morning and evening chore from the time he was big enough to get a squirt of milk from a cow. He obtained his Bachelor of Science degree from the University of Wisconsin and the M.S. and Ph.D. degrees at the University of Illinois. He is currently professor of dairy cattle feeding at the latter institution. His chief work in recent years has been conducting investigations of methods of improving feeding value of silage, hay and pasture.

Dr. Nevens is author of "Principles of Milk Production," a book dealing with the production of forages for dairy cattle feeding and with the breeding, feeding and management of dairy cattle, and is co-author with W. W. Yapp of "Dairy Cattle: Selection, Feeding and Management," a book originally written for high school students but in the latest edition broadened in its scope.

Phosphate Rock Pays Good Returns

"EXTRA YIELD FROM ONE CUTTING OF HAY PAYS FOR ROCK PLUS PROFIT ...YEAR-AFTER-YEAR DIVIDENDS FOR 6 TO 8 YEARS"

EDWIN VAN METER, Laurel, Ind., shows difference in yield of hay cut from equal areas in same field—right, where Phosphate Rock was applied; left, where NO Rock was used.

TRY PHOSPHATE ROCK ON YOUR FARM— THIS FALL

These Farmers KNOW Rock Pays

VERMONT: "Before seeding legume hay, we applied 2000 lbs. AA QUALITY Phosphate Rock per acre on part of the field, then fertilized the entire field with Agrico, as per our usual practice," says CARLOS DUNN, East Ryegate, Vt. "On 1st cutting, we got one-half ton MORE hay per acre where the Rock was applied, and on 2nd cutting over a quarter ton more per acre—a good 1st year return, and the Rock will pay its way for years to come."

OHIO: "Last fall, on a trefoil-alfalfa meadow, we applied Agrico 3-12-6, 350 lbs. per acre, our usual practice, and then on part of the field, added 1000 lbs. AA QUALITY Phosphate Rock," say L. D. BARTLETT & SON (LARRY D. BARTLETT at right), of Fredericktown, Ohio. "On 1st cutting this year, we got 1253 lbs. more baled hay per acre where the Rock was applied—enough increase to cover the cost of the Rock on one cutting."

VIRGINIA: "In Fall '52, I manured a 10-acre field of wheat and topdressed with AA QUALITY Phosphate Rock, 1000 lbs. per acre on part of the field, 2000 lbs. per acre on the rest," says J. F. JOHNSON, Farm Mgr. for MRS. J. P. BROADDUS, Nokesville, Va. "At harvest, we measured yields and where 2000 lbs. Rock was applied, we got almost 20 bu. MORE wheat per acre than with 1000 lbs., plus a better seeding, too."

TEXAS: "We have used AA QUALITY Phosphate Rock for a number of years and know that it pays real profits," says MARCUS W. MAURITZ, of Ganado, Tex. "With $23. worth of Rock (2000 lbs.) per acre, I make one acre of $50. land do a better grazing job than 15 unfertilized acres. That means a $73. investment, against one of $750.—and the condition of my cattle is far better on Rock-fertilized pasture."

This typical report from Edwin Van Meter, of Laurel, Ind., shows why farmers from New England to Texas are applying AA QUALITY Ground Phosphate Rock as a supplement to their regular fertilization program. Says Mr. Van Meter:

"I know from experience that it takes plenty of phosphorus to get continued high yields and this confirms the point: In Spring 1951, I applied 1000 lbs. AA QUALITY Ground Phosphate Rock per acre on a 20-acre field of clover, leaving a check strip without Rock. I plowed this under for corn and had the field in corn in 1951 and 1952, then followed with wheat, fertilizing each crop as usual with the AGRICO Fertilizer for the particular crop.

"I could see that the Rock application helped the corn and wheat yields but didn't have a chance to check up until I sowed sweet clover and alfalfa in Spring 1953. The area where the Rock had been applied provided excellent grazing for 35 head of beef cattle from the time the wheat was cut until January 1, 1954.

"This Spring, 1954, where no Rock was applied, the legume stand is extremely thin, while the rest of the field where Rock was turned under has an excellent stand. The difference was so noticeable that I decided to check the hay yields.

"On 1st cutting in 1954, the Rock portion of the field yielded 3785 lbs. of hay per acre, worth $47.31, against 2475 lbs. per acre, worth $30.94, without Rock. *Thus, after 4 years, the Rock paid for itself on one cutting of hay, plus a net profit of $7.87 per acre besides.*

"This makes it plain that AA QUALITY Phosphate Rock pays excellent returns. I am using it on more of my fields this year."

Try Some Rock This Fall

You, too, will find that it pays to build and maintain fertility the low-cost economical way—by applying AA QUALITY Ground Phosphate Rock as a supplement to your regular fertilizer program. Disk in a liberal application, 1000 to 2000 lbs. per acre, this Fall. Rock usually pays for itself the first year and keeps on paying dividends for 6 to 8 years, as the phosphorus in the Rock is steadily converted by soil acids into soluble form for plant use. Worked in deeply, Rock encourages deeper root growth, builds a better soil by increasing organic matter and nitrogen, increases moisture-holding capacity.

Drop us a line and our free Soil Service will analyze your soil and recommend a complete fertilizer program to show you the best return for your fertilizer dollar.

AA QUALITY® Ground Phosphate Rock is mined and refined by one of the world's oldest and largest producers of quality plant foods — the makers of AGRICO®, the Nation's Leading Fertilizer and 18% NORMAL© the Low-Cost, Extra-Value Superphosphate.

The AMERICAN AGRICULTURAL CHEMICAL Co.

Alexandria, Va.
Baltimore 24
Buffalo 6
Cairo, Ohio
Carteret, N. J.
Charleston, S. C.
Cincinnati 17
Cleveland 11
Columbia, S. C.
Detroit 31
East St. Louis, Ill.
Fulton, Ill.
Greensboro, N. C.
Henderson, N. C.
Houlton, Maine
Laurel, Miss.
Montgomery 2, Ala.
New York 7, N. Y.
Norfolk 6, Va.
No. Weymouth, Mass.
Pensacola, Fla.
Phoenix, N. Y.
Pierce, Fla.
Saginaw, Mich.
Savannah, Ga.
Spartanburg, S. C.

FROM OUR MINES TO YOUR FARM
FOR REAL ECONOMY, USE

AA Quality Phosphate Rock

FINELY-GROUND FLORIDA PEBBLE PHOSPHATE ROCK

Produced by the Makers of AGRICO®—The Nation's Leading Fertilizer and 18% NORMAL® Superphosphate

Riddle: WHY DOES A RED COW EAT GREEN GRASS TO GIVE WHITE MILK . . . OR *PRIME BEEF?*

Answer: Because, as every farmer knows, the green gold of lush spring pasture is Nature's way of supplying body-building proteins, vitamins and minerals for vigorous animal growth. Cattle on good range are more healthy and steadily gain weight. Dairy cows respond with increased milk flow. Other stock and poultry are less susceptible to disease and show excellent growth and reproductive qualities. And the beauty of natural pasturage is that *Nature pays most of the feeding cost!*

HOW CAN YOUR STOCK GET NUTRITIOUS GREEN GRASS FOR LOW-COST WINTER FEEDING?

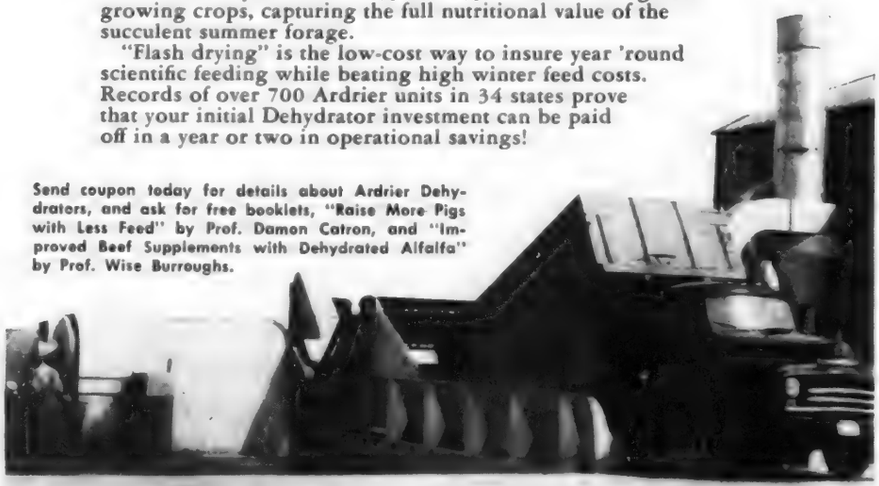
. . . with lush summer pasturage

***"Flash Dried" by* ARDRIER DEHYDRATORS**

Dehydrated forage crops, produced by "flash drying" in Ardrier Dehydrators, are the logical answer to low-cost, nutritionally balanced winter feed. Ardrier dehydration instantaneously removes 60% to 80% of moisture in green growing crops, capturing the full nutritional value of the succulent summer forage.

"Flash drying" is the low-cost way to insure year 'round scientific feeding while beating high winter feed costs. Records of over 700 Ardrier units in 34 states prove that your initial Dehydrator investment can be paid off in a year or two in operational savings!

Send coupon today for details about Ardrier Dehydrators, and ask for free booklets, "Raise More Pigs with Less Feed" by Prof. Damon Catron, and "Improved Beef Supplements with Dehydrated Alfalfa" by Prof. Wise Burroughs.



ARDRIER DEHYDRATORS are manufactured for ARNOLD DRYER COMPANY by

THE HEIL CO.

Dept. 4894
3048 W. Montana St.
Milwaukee 1, Wisconsin

Please send details about Ardrier Dehydrators to fit my requirements.

☐ Model SD75-22 for farms with 100 to 500 acres of forage crops.
☐ Model SD8-25 for farms with 400 to 1000 acres of forage crops.
☐ Model SD10-30 for farms with 1000 or more acres of forage crops.

Check Booklet Wanted:
Raise More Pigs with Less Feed ☐
Improved Beef Supplements with Dehydrated Alfalfa ☐

Name_____

Street or RFD_____

City_____ State_____

ARD-46

FACTORY ON WHEELS

(*Continued from page* 63)

Q. Are the same machines used for corn and celery?

A. No, although the principal of operation is similar in terms of the "wings," main conveyor for the packers, driving system, etc. The main difference lies in the fact the celery machine is heavier as a result of its belly tank and washing assembly. Corn is not washed. Also, since the celery crop requires a greater moisture content in the earth, the celery machine employs 4 axles instead of the 2 used on the corn machine. This gives greater pulling traction and less chance of bogging down.

Q. These machines must be great labor savers. How much?

A. Both machines reduce labor costs from 10 to 15 per cent from old hand methods. In the case of the celery machine there is a saving of 10 to 20 per cent in harvesting damage, also. The old field box type of harvesting, wherein the boxes had to be lifted off supply trucks by hand in the field, loaded, lifted back, transported to the "wash house," stacked there, dumped, washed, and repacked—all invited mechanical damage. With the machine, the celery is crated but once, being already washed, and taken to the pre-cooling plant, still in the crate, prior to shipment.

The 10 to 15 per cent labor-saving factor is worth from $100,000 to $150,000 annually to the Dudas.

Q. How much use does a machine get in a year?

A. About eight months of continuous use. "It would stand up for 12 months out of the year," says Knight. "However, we have only a maximum eight-month growing season."

Q. All those chains, wheels, gears! Are there many accidents?

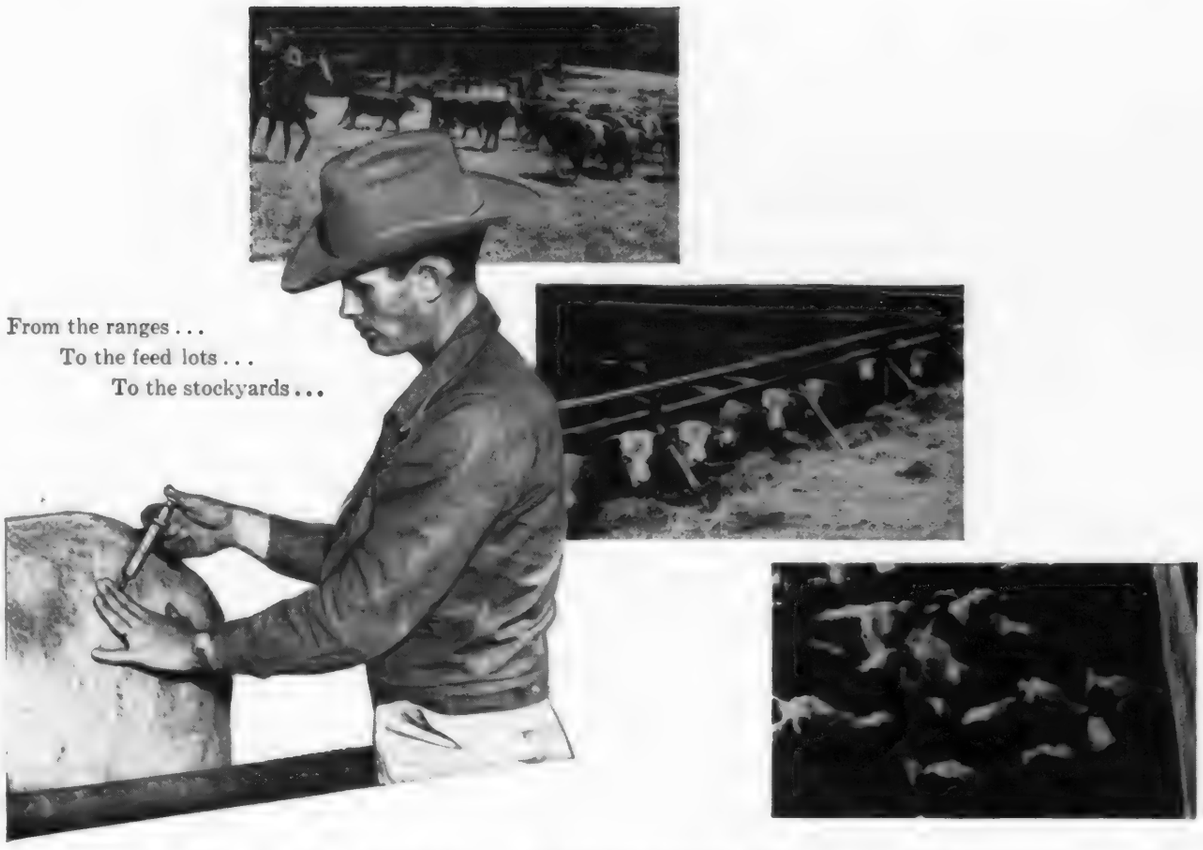
A. Practically none, says Knight. At the outset there was a minor hazard presented by the "topping saws" on the celery machines, but this was rectified when John Duda, one of the three sons, built a wire guard screen.

Q. Does this machine entirely replace a packing and processing plant?

A. Not entirely, except when used in connection with portable pre-cooling plants. In such cases, the crated vegetables can be taken right from the mobile pre-cooler and loaded onto semi-trailer trucks waiting at the edge of the field for direct shipment to the market.

However, the capacity of a mobile pre-cooler plan is limited. For example, in the case of corn and celery, the mobile cooling plant is limited to about 200 crates an hour, or about five carloads a day. Therefore, at Belle Glade, a permanent cooler installation which can handle 1,200 crates an hour or 30 carloads a day, is used in connection with the field harvesters and crates.

The cooling principal is similar in both



Give ONE-SHOT PROTECTION *against* SHIPPING FEVER *with*

INJECTION BICILLIN®

Dibenzylethylenediamine dipenicillin G in aqueous suspension

"Up to 9 days penicillin protection—from just one injection!"

A single dose of Injection BICILLIN—the longest-acting penicillin preparation developed to date—produces uninterrupted penicillin blood levels in cattle *lasting up to 9 days!* This prolonged level makes possible the prevention of many infections associated with the shipment of animals. One shot gives the cattle penicillin protection from range to shipping destination. That's good, economical business for both shippers and receivers of cattle!

Supplied: In vials; 10 cc., 50 cc.; 200,000 units per cc.

Also available in Tubex® cartridges, 600,000 units per Tubex.

AVAILABLE FROM YOUR DRUGGIST OR OTHER ANIMAL HEALTH PRODUCTS SUPPLIER

Wyeth
Philadelphia 2, Pa.

DOW

PENTA *is a clean wood preservative*

PENTA-TREATED POSTS MAKE YOUR FENCING LAST YEARS LONGER

EASIER TO HANDLE; CLEAN, WON'T LEACH—

PROTECTS AGAINST ROT, TERMITES—

SAVES REPLACEMENT COST, LABOR—

DOES NOT HARM STOCK

Farmers with a sharp eye to money in the pocket put in fencing that *stays* strong, *stays* up year after year without the high cost and labor of post repair or replacement. More farm businessmen today put in only posts treated with clean PENTA* wood preservative. Farm use over the years demonstrates that PENTA gives posts and other timber maximum resistance to decay and insects, under widely varying climatic conditions.

Ask your local dealer for posts pressure-treated with rot-resisting *PENTAchlorophenol. Using PENTA-treated poles and lumber saves money, too—for loading ramps, pole-type barns and other structures, hay and feed racks, truck and spreader bottoms, cribs. If you grow your own posts, you can treat at home with clean PENTA solutions. Mail coupon now to THE DOW CHEMICAL COMPANY, Midland, Michigan.

SEE **MEDIC** NBC-TV
MONDAY EVENINGS - SEE YOUR PAPER FOR TIME & CHANNEL

PENTA posts resist top rot, ground-line decay; stay sound all through.

THE DOW CHEMICAL COMPANY
Dept. PE 763M, Midland, Michigan

Please send me, without cost or obligation:

- ☐ Booklet, "PENTA Pressure-Treated Farm Posts".
- ☐ Booklet, "Before You Build Your Barn".
- ☐ Name of local dealer stocking clean PENTA-treated posts and poles.

Name_____

Rural Route No._____

Town_____ State_____

you can depend on DOW CHEMICALS DOW

instances: in both mobile and permanent coolers, the crates are about half-submerged in ice water for a period of 30 minutes. After cooling, they are ready to go directly to the railroad cars or semi-trailer trucks for icing down and shipment.

Q. Does the weight of the machine damage soil or crops?

A. Not much. This is taken care of by the big tires, extra axles, and great wheel surface. According to Knight, the pounds per square inch of pressure on the soil is no more than that from a crawler-type tractor.

Q. Can these machines be used anywhere else? Can they be used for any crops besides celery and sweet corn?

A. These machines, according to Knight, could be used anywhere in the United States. On firmer soils than Florida muck, they would be even more efficient. There would not likely be any more adverse temperature conditions than in Florida. Water is no problem, and no particular skills are required of the workers. They could be adapted for any crop harvested like sweet corn or celery.

Q. The Dudas must be live wires. Tell me something about their other operations.

A. Duda and Sons are the largest producers of celery and corn in Florida, and Knight suspects they may be the largest in the world. This past season they had about 5,000 acres in celery and corn and other leafy vegetables.

Duda also operates smaller harvesters of this type which are referred to as vegetable or leaf machines for the harvesting of such crops as Chinese cabbage, Boston lettuce, romaine, escarole and chicory, etc. The leaf machines afford a higher clearance to prevent damage to the crop. They have cleats on the main conveyor to prevent the cabbage, etc., from rolling back along the slant of the conveyor. They are also used to harvest peppers and tomatoes. They employ a crew of about 20 cutters, packers, etc., and cost about $3,500.

The Dudas are always making improvements on the machines and their plans call for more efficient design at lower cost. At present, several of their machines are operating in New York State.

The elder Duda came to this country from Czechoslovakia. Since retired, he has turned over the operation of his big organization to his three sons. John, the oldest, is responsible for the shops and machinery. Andrew, the next oldest, heads up the office, including sales. Ferdinand, the youngest, is in charge of the farming operations, and an 80,000-acre ranch, stocked with registered Brahman and other cattle.

The family moved to Florida from Ohio. They produce approximately 3,000,000 packages, equivalent to 8,000 carloads, of vegetables yearly. They employ some 800 workers for eight months of each year, maintaining a staff of about 200 during the slack season.

Q. What about the people who work these machines? Are they highly trained;

NEW FEED SUPPLEMENTS WORTH MORE!

MAKE YOUR HOME-GROWN GRAINS AND ROUGHAGE

To produce milk and meat at low cost today, many farmers are growing more and better feed at home. Getting the greatest nutritional value out of that feed is vital to extra profits.

New feed supplements containing ARCADIAN* Urea Feed Mixture boost the efficiency of home-grown feeds two ways: (1) by improving the digestion of all the feed cattle eat, and (2) by providing a better balanced concentrate to fill the nutritional gaps in home-grown grains and roughage.

ARCADIAN Urea Feed Mixture is a source of protein that stimulates bacteria in the animal's rumen to break down more of the cellulose and other fiber in grains and roughage and release more nutrients from inside fibrous cell walls for making valuable meat and milk. This "spark" for improved digestion is best provided by properly balanced feed supplements containing ARCADIAN Urea Feed Mixture as a source of up to one-third of the protein in the ration.

Balanced feeding of cattle requires a proper ratio of protein, minerals, vitamins and energy. Home-grown feeds supply part of these nutrients and purchased supplements must supply the rest. ARCADIAN Urea Feed Mixture is such a concentrated source of protein, that it makes room in every pound of supplement for extra minerals, vitamins and other nutrients needed for efficient feeding.

The benefits of ARCADIAN Urea Feed Mixture are widely accepted by experiment stations, farmers and ranchers. Beef herds on range or poor roughage grow better, winter better, and produce better calf crops when fed concentrates containing ARCADIAN Urea. Feed-lot cattle make lower-cost gains, and dairy cattle produce milk at minimum feed cost.

Arcadian®

UREA FEED MIXTURE

YOU CAN GET QUALITY FEEDS CONTAINING

ARCADIAN Urea Feed Mixture to fit a wide variety of cattle and dairy feeding programs today. See your feed dealer now for supplements that develop extra feed values from the entire ration you use. Ask him also for free literature on ARCADIAN Urea Feed Mixture, or write to the nearest address below.

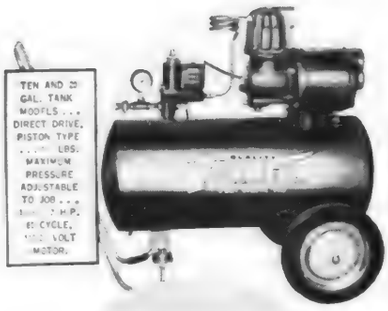
*Trade-Mark

NITROGEN DIVISION

Allied Chemical & Dye Corporation

P.O. Box 98, Ironton, Ohio • P.O. Box 166, Omaha 7, Neb.

NITROGEN DIVISION ALLIED CHEMICAL



QUALITY TOKHEIM PORTABLE

AIR COMPRESSORS

Inflate tires quickly ● grease and dust machinery ● paint buildings, fences, equipment ● spray trees and produce ● do many other useful jobs fast, easily with this versatile compressor. Fine workmanship. Wonderfully efficient.

NEW SELECT-O-MATIC CONTROLS

Set a Tokheim at the pressure needed and forget it. Air in tank is automatically replaced. Output never exceeds maximum setting. A valuable plus feature.

SEE YOUR IMPLEMENT DEALER, YOUR TOKHEIM REPRESENTATIVE, OR WRITE FACTORY FOR LITERATURE.

General Products Division

TOKHEIM CORPORATION

1626 Wabash Ave., Fort Wayne, Indiana

Factory Branch: 1309 Howard St., San Francisco 3, Calif.

do they like the work: where does Duda get them; do they have fun?

A. The machines are called "mule trains" by the workers, a name which apparently originated from the appearance they make while moving across the horizon. The negro workers, practically all of whom are brought on a group contract basis from the Bahamas, Jamaica, and the Leeward Islands, are a happy-go-lucky lot. They amuse themselves by singing Calypso songs, and there's a great deal of good-natured banter passed back and forth. They are picked up shortly after dawn each day from assembly points in the negro section, perhaps 500 or 1,000 or more of them at a time. They permit themselves to be "auctioned off" to the highest bidder for their labors for that day.

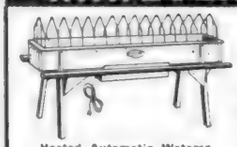
There is a friendly but sharp competition between machines. Each machine is scored on an efficiency basis by the field superintendent and the machine's standing in the contest is available to all in the small office, located on the forward deck. Prizes and bonuses are awarded the topscoring machines.

Bonuses are paid to Duda workers in the form of a profit-sharing arrangement whereby a hard-working crew can earn a higher rate for itself. For example, if 50 workers manage to put up 2,000 crates in one day they will be paid more than, say, a crew of 60 putting up the same number, the savings being prorated.

During lunch periods the negroes eat red rice and just about anything else imaginable mixed with it. Some sleep at their posts on the machine during the half-hour lunch period; some sing; others may trim their toenails with the switch blade knives all of them carry. These are also used socially. Fights are common off the job, particularly on Saturday nights, when Belle Grade police have been obliged to jail as many as 35 at one time for brawling.

THE AUTHOR: In this story George X. Sand turns from his usual sports and outdoor writing. Born in New Jersey, he was trained as a radio engineer, but took to traveling and writing. He was fortunate to marry a writer and photographer and he and his wife make a team which operates out of a beach home at Boca Raton, Florida. This article came from the writer in the form of notes which were so well done THE FARM deided to publish the notes.

Protect Your Profits with EVERYDAY



Heated Automatic Waterer

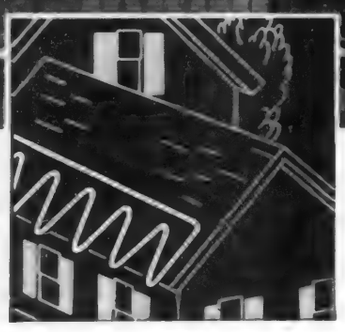
Serves You Better and Lasts Longer

Leaders in the Poultry Industry prefer Everyday money and labor-saving Feeders, Waterers, Ventilators, Egg Washers, Nests, Fans and Timers.

Our Automatic Waterers are famous for their long, year 'round service records. See the quality Everyday Equipment at your dealer's, or write Dept. Q for catalog and prices.

EVERYDAY POULTRY SUPPLY CO.

SIDNEY, OHIO



Prevent costly Winter freeze-ups

G-E HEATING CABLE SETS PROTECT PIPES AND ROOFS AGAINST WINTER DAMAGE

You can prevent pipes, valves, and pumps from freezing and bursting this winter, by protecting them with G-E lead-covered heating cable sets. Wrap the cables around exposed plumbing to help assure a steady water supply for barns, poultry houses, and residences. Heating cable sets have many other winter uses, too:

Prevent roof leaks caused by ice dams at the eaves that force water up under the roofing to damage ceilings, walls, and furnishings. Heating cable sets keep eaves, troughs, and downspouts clear for as little as one cent an hour.

Keep watering troughs from freezing. Line them with waterproof heating cable sets to keep the water at drinking temperature.

Keep floors warm in loafing barns, kennels, and poultry houses, and as a heat source for brooders. Lay the cable right in the concrete.

Keep feed additives fluid. Heating cable sets, wrapped around drums of honey or molasses, will keep it flowing easily.

WARM-WEATHER USES GIVE DOUBLE VALUE

And next spring, use your heating cable sets to speed seed germination and seedling growth, by burying cable in the soil of hot beds, cold frames, and greenhouses. They'll help you get to market early—in plenty of time for top-price selling. Ask your hardware or farm equipment dealer for G-E heating cable sets, or write for further information to Section D101-F30, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

Progress Is Our Most Important Product

GENERAL ELECTRIC

(*Continued from page* 41)

cows to breed him to: and there was no selection of daughters to be tested. The first five that came in season were bred and they were the first five to be put on D.H.I.A. test.

As the winter melted into the hot, dry summer of 1953, Ed Moore's visits became more frequent. Something wonderful was happening to these young cows. They had already out-produced their dams. By Thanksgiving time, Ed had figured and refigured the milk records. He was sure now. Basil was a proven sire, based on records of his first five daughters. The D.H.I.A. Letters for 1953, Volume 29, Numbers 1-12, confirmed the information. He was not only proven, he was the top proven Jersey sire for the year of 774 bulls tested. No other bull in the country had both higher daughters' production and greater increase of daughters over dams. He had five daughters with five records averaging 10,749 pounds of milk and 619 pounds of butterfat. His daughter's dams had twelve records averaging 8,884 pounds of milk and 515 pounds of butterfat. This gave Baronet Theda's Basil daughters a difference of plus 1,865 pounds of milk and plus 104 pounds of butterfat production over the dams.

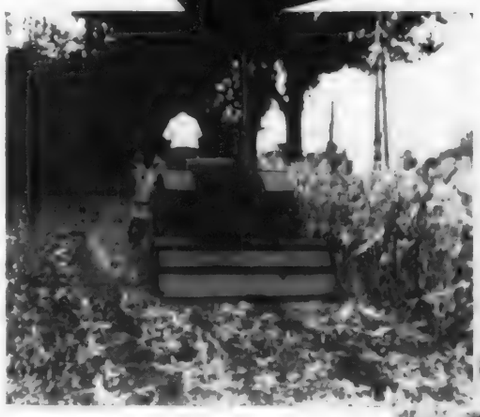
In May, 1954, Basil was classified by an official Jersey Classifier as "excellent": 6 of his daughters were rated "very good"; 3 rated "good plus"; 1 rated "good." Now, the next goal for Basil is to make him a "superior sire." The requirements for this rating as set up by the American Jersey Cattle Club, Columbus, Ohio, are:

"A Tested Sire becomes a Superior Sire when all of the following requirements are met:

1. The 305-day, twice-daily-milking mature equivalent production average of all the tested daughters shall equal not less than 8,400 lbs. milk and 470 lbs. butterfat.
2. At least 10 daughters must be classified for type and the average of all classified daughters shall not be less than 83.00%.
3. The number of tested daughters and the number of classified daughters, when taken separately, shall each equal not less than 50% of the number of registered daughters 4 years old or older."

With the Del-Norte heifers turning the hands on the milk scales to higher figures, the milk checks have done likewise, up to $1,300 a month. In Benton County, Ed Moore figures your cow has to produce 6,000 pounds of 4 per cent milk to pay for her feed bill. This the Del-Norte cows have done with several tons of milk to spare. Nancy Del-Norte No. 1764968, the top Jersey in Arkansas, at 3 years and 6 months milked 14,313 lbs. in 305 days with 763.0 lbs. of butterfat, on twice a day milking, about $490 more milk than was needed to pay her feed bill. Jerry Del-

TILTH as your soil NEEDS IT!



Seaman Self-Propelled Tiller, Milling and Mixing-In Standing Corn

Different soils need different degrees of tilth, medium, fine or coarse. Clay soils, for example, can "puddle", crust or "cement" if pulverized too fine . . . Crops also may vary in tilth requirements for quick, early and full germination . . . Pasture renovation demands a fairly coarse tillage and so do oats, legumes and certain vegetables . . . Other vegetables do best with fine pulverization. Corn requires a medium tilth . . . When cover crops are turned in, a fine tilth promotes uniformity in distribution of the vegetation.

With the Seaman Self-Propelled TILLER you have the widest selection of tilth at your command — COARSE, MEDIUM, FINE with all stages in between . . . Adjustments are easy to make right in the field without delay in tillage production. This is just one of the many advantages *only* the Seaman TILLER offers . . . For more complete information — write for the newly revised and greatly enlarged booklet "Benefits of Rotary Tillage".

Seaman Self-Propelled Tiller, 7 ft. Tillage Width — Gasoline or Diesel Powered.

SEAMAN MOTORS Inc.

331 North 25th Street
Milwaukee, Wisconsin

Join the SWING to

LEAN MEAT BERKSHIRES

"The Packers Favorite"

AUCTION SALE, 90 top prize winners from the National Futurity Show

Sat., Sept. 25th

Starting 11 a. m. DST, Fairgrounds
SPRINGFIELD, ILLINOIS

Write regarding FREE order buying service, sale catalog and breed literature to —

AMERICAN BERKSHIRE ASSOCIATION
Berkshire Bldg.,
Springfield, Illinois

There's a BEST TIME to service your tractor

Prevent major repair with TIMELY care!

Manufacturers specify when maintenance is needed for trouble-free performance. Your tractor lasts longer and stays out of the repair shop with proper maintenance.

New and improved through continuing engineering research

HOBBS Engine HOUR METER

Tells WHEN to change oil, lubricate, overhaul, etc. Leading manufacturers recommend the meter as a way to better performance.

NOT A REVOLUTION COUNTER . . . but an electric timing instrument that shows HOURS and MINUTES of tractor operation — accuracy that's important for protective maintenance. Ruggedly built and easy to install. LOW PRICE — see your dealer or WRITE FOR FULL DETAILS.

ORIGINATED AND MANUFACTURED EXCLUSIVELY BY
John W. Hobbs Corporation
2066 TALE BLVD. SPRINGFIELD, ILLINOIS

BOYT
DES MOINES, IOWA
HIGH QUALITY
at a price you can afford

RIDING EQUIPMENT
Riding equipment for farm use, pleasure and show. English and Western saddles, bits, bridles, spurs. Stable blankets. Girths. Caveson sets. Other horse equipment.

HALTERS
Baby beef, cow, calf or bull show halters. Complete selection of stockmen's supplies. Cow blankets in all sizes.

OTHER BOYT ITEMS

Ever since 1901, Boyt has been making the strongest work harness in America. Also available are horse collars, body belts, tarpaulins, hunting and fishing equipment, and many other items of particular interest to the farmer and sportsman.

FREE CATALOGS — Leading harness, hardware and implement dealers feature Boyt items. Three catalogs available. Specify whether interested in farm items, sporting goods or riding horse equipment. Write The Boyt Co., Dept. L., Des Moines, Iowa.

Norte No. 1927265, the top Jersey heifer in Arkansas at 2 years and 7 months, did 11,960 lbs. of milk and 732.0 butterfat in 305 days.

The milk truck that pulls in the barnyard this summer picks up an average of eight 10-gallon cans a day from the 19 cows in the herd. The milk goes to Dallas, 300 miles to the south. The Del-Norte milk, which is averaging out right at 5.6 per cent butterfat, is bringing $5.98.

The Del-Norte cows are not pampered. They are handled affectionately (you can count on Mrs. Craver's daughter for that). They live in the pastures and they come up for shelter to a loafing type barn. The only time they are in stalls is when they are milked. The pastures have been limed, fertilized, and manured and grow a good mixture of fescue, Ladino, and white Dutch clover. For late summer, there is Sudan grass.

The milking cows are on Purina Milking Chow, fed one pound for each three pounds of milk each one produces. In the winter they get the same high quality Oklahoma alfalfa as the goats. In addition, they have the sorgo-corn silage which is fed in bunkers, about 20 pounds to the cow.

The calves, like the goat kids, are started off on Purina Calf Startena, and later go onto Dry and Freshening feed. The calves are usually fed milk for a month.

The moderate Arkansas winters allow the animals to get exercise outdoors every day and this no doubt accounts for their good health. But no matter how healthy the herd, there are cases of milk fever and mastitis. "One of the wonderful new antibiotics that has come along to help in dairying is Terramycin," says Sis. "It has made the control of mastitis quick and effective. And it doesn't affect the milk flow or make the milk unusable."

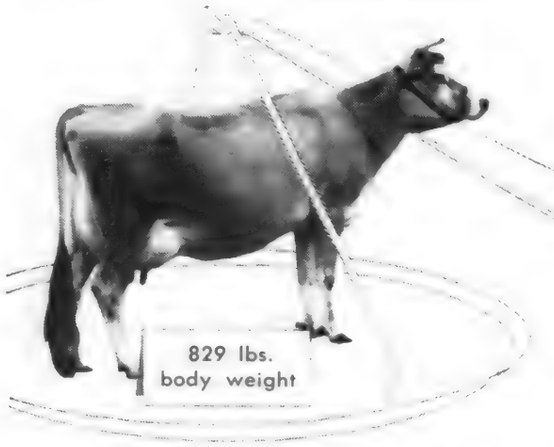
There are new breeding plans for the Del-Norte Jerseys being worked out on the kitchen table, based on Mrs. Craver's breeding experience and testing with the goats. A herd of Jerseys giving 10,000 lbs. of milk, and a number of 1,000 lbs. of butterfat producers, is the goal that Sis is working toward. As she points out, you can form an opinion of a goat mating in 2½ years. (The gestation period is 5 months; a well-developed doe can be bred at 12-14 months old; she will freshen in another 5 months; in 6 months more her milking ability will be apparent.) This "breeding laboratory" has saved time; so many more matings have been studied than could have been with cows, for 3½ years is about the minimum time needed for checking the results of a cow mating—at the milk pail.

Looking ahead, there are expenses as well as the chance to make money. Health regulations require a new milking parlor, separate from the old barn. The problem: Should it be built between the barn and the house? The answer will most likely be:

A LESSON IN COW BUYING

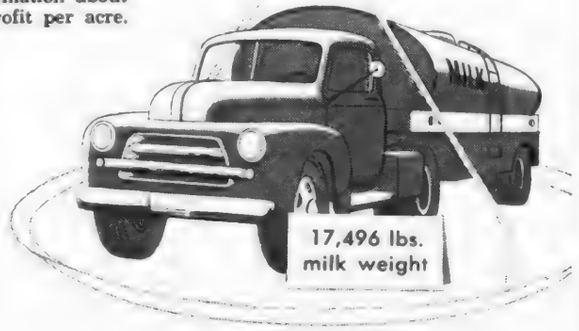
What is a good dairy cow?

One that produces ten times her own weight in milk each year!



Marlu Milady's Fashion produced 17,496 lbs. milk with 829 lbs. fat—nearly 21 times her own weight in milk during her first lactation! She is an extraordinary Jersey, but in comparison with other dairy cows Jerseys give extraordinary performance on the body weight basis.

It is not at all uncommon for entire registered Jersey herds to produce annually 10 or 12 times their body weight. This is a real test of efficiency and profit. You can have this profit and efficiency on your dairy farm with registered Jerseys. See your Jersey neighbors for registered breeding stock. Subscribe to the *Jersey Journal* for information about this breed that makes more profit per acre.



☐ Please send me free literature on the Jersey breed.
☐ Please send me a free copy of the Jersey Journal magazine.
I want to know where to buy breeding stock.

The American Jersey Cattle Club
1521 East Broad Street, Columbus 5, Ohio FQ954

Name_____
Address_____
Post Office_____ State_____

beauty and landscaping come second: the farm is for dairying and the most practical place for it is close to the house.

On the credit side of the ledger will be the sale of bulls and heifers sired by Basil. His record, and the records of the Del-Norte cows, will make the young stock a valuable addition to any herd.

The Del-Norte women have had many nice compliments on their animals, and their farm, but just this summer they received one that pleased them all. It came from the driver of the milk truck that picks up their milk and that from all other farms over this dairy county. He asked, "Could I buy my family milk from you?"

RIVER DRIVERS

(*Continued from page* 56)

Watching the cooks' wagon set up, I ran my tongue over my lips.

I had tasted rivermen's beans before at the invitation of camp cooks, who, rather than dump a day's leftover, asked crowds of Concord villagers to eat after the rivermen. Already I savored that logger's standby served in a steaming heap with chunks of golden gingerbread broken from long narrow "cards," loaves the measure of a man's arm.

To see beanhole beans made ready heightened the enjoyment of eating them. Expertly a cook dug a hole in the bank lately rigid with frost. At its base he kindled a blaze of hardwood sticks which he allowed to burn down to sissing coals. Then, carefully, on top of those red embers, he set the iron kettle with its combination of yellow eyes, clear spring water, seasoning, molasses or maple honey, and pork lumps bigger than your hand. He clamped the lid on tight. A second fire was kindled above this—the rest was left to time. Without benefit of any electric timer, he, nevertheless, knew the exact second to brush off graying coals, draw up his pot, and, raising the cover, let us catch never-forgotten whiffs of the steaming mass.

Also supplied as equipment were wooden shoulder yokes fitted out with a couple of deep wooden buckets. In these, two meals a day were carried to gangs toiling at the river's edge. Men were prying loose logs stranded in fields by previous high water. A pair worked over timber snagged on a jutting ledge. Others wound a chain rig about a stray while a team of strong horses waited to pull the log into the current. Midst this scurrying—bump of log against log, orders from river bosses, noisily rushing water, thrashing about of horses, and shouts from driver to driver, it was a welcome moment to gangs when the yoke-bearer hove into sight carefully balancing the pails from which still rose faint wisps of steam.

Concord farmers received the rivermen with mixed feelings. Bosses bought eggs.

● Now you can have four attachments for your Gehl Forage Harvester — Windrow Pickup—Mower-Bar—Regular Row Crop, *or the NEW Gehl 2-Row Attachment* for corn, sorghum and other row crops.

Save gas, time and labor by faster filling. Half the trips across your fields saves travel time and soil packing. Save wear of tractor and chopper by cutting actual operating time in half. Increase income from custom chopping.

Drop in at your Gehl dealer NOW and see the great new 1954 Gehl Chopper with the New Quick Switch from Windrow to Mower-Bar or Corn Head in only 5 minutes! See the Gehl Forage Blower with Exclusive Power Take-Off Drive for faster unloading.

See the *complete* Gehl Line—made by specialists in forage handling machinery for Half a Century. Join America's dollar-wise, chopper-wise farmers who own more Gehl Forage Harvesters than any other independent make—*Gehl is a good name to go "Buy".*

★ Costs Little More than 1-Row
★ New Quick Switch
★ Cut Twice as Much
★ Reduce Field Travel
★ Save Operating Time
★ Increase Custom Income
★ Motor or PTO Available

GEHL offers a toast to your health, happiness and prosperity: —A glass of milk with every meal—for every member of the family!

Gehl Chopper with Mounted Motor does a great job two rows at a time.

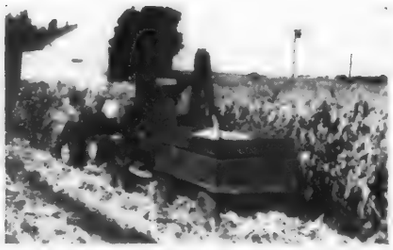
FREE! Write Today...

GEHL BROS. MFG. CO.
Dept. MJ-953, West Bend, Wisconsin

Please send me information on:

	CHECK
New Gehl 2-Row Attachment with New "Quick Switch"	☐
"Streamlined Forage Harvesting"	☐
"How to Rate a Chopper"	☐
New Gehl Grind-All Hammer Mill...saves feed costs	☐

Name.....
Street or R.F.D.....Town.....
State.....Acres Farmed.....



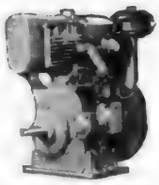
This Wisconsin-powered corn harvester, built by King & Hamilton Co., Ottawa, Ill., shells standing corn, discards husks and delivers shelled corn into the trailer wagon.

This New Holland Ensilage Cutter, made by New Holland Machine Co., New Holland, Pa., makes good use of Wisconsin "Lugging Power".

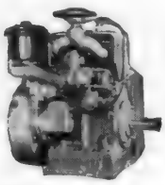
Here is a unique Wisconsin Engine application . . . supplying dependable "Lugging Power" for this Ryan Power Sod Buster, made by K & N Machine Works, Inc., St. Paul, Minn.

Bucking heavy cordwood is another job that calls for Wisconsin Engine "Lugging Power", as demonstrated here by a Montgomery Ward garden tractor with generator and chain saw attachment.

Here's "LUGGING-POWER" that Doesn't Stall in the "SHOCK LOAD" Pinches



4-Cycle Single Cylinder
3 to 9 hp.



2-Cylinder Models
7 to 15 hp.

V-Type 4-Cylinder
15 to 36 hp.

Any equipment that operates under variable heavy-duty load conditions calls for dependable "Lugging Power" from the engine . . . the ability to "keep going" in the Shock Load pinches! When the power load slows down the engine speed, your Wisconsin Heavy-Duty Air-Cooled Engine *hangs on* and keeps the job moving where high-speed engines would usually stall.

This is the practical result of the heavy-duty engineering design and construction, plus dependable AIR-COOLING at all operating temperatures.

You can't do better than to specify "Wisconsin Engines" for your farm equipment. Write for 64-page catalog illustrating over 260 Wisconsin Engine power applications.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

you get STURDY CONSTRUCTION, TROUBLE-FREE OPERATION with a Mojonnier BULK COOLER

The simple, fool-proof Mojonnier refrigeration system cools the milk to 34° to 36° F. soon after the end of the milking period. Mojonnier tanks enjoy a reputation for trouble-free operation — everywhere. The tanks are of all stainless steel construction insuring indefinite equipment life. This, plus sturdy rounded bottom construction, insures permanent calibration accuracy. Bulletin 290 gladly sent upon request.

Write: **MOJONNIER BROS. CO.**
DEPT. B-3
4601 W. Ohio St., Chicago 44, Illinois

Mojonnier BULK COOLERS

milk, flour, pork, molasses, and straw for men who lacked any mattresses. VanDyke Brothers paid promptly, paid well, settled for damages. But, like village roads, after the passage of hundreds of spiked shoes, fields would be deeply pock-marked. Barns might be taken over on a stormy night by crewmen preferring a roof to rain above their heads. And woe to a farmer disregarding the bosses' cautions against selling his gang any hard cider!

What spending money men hid in the pockets of clothes which never came off, night or day (they neither undressed nor removed their boots nor took time to bathe), had not come from any pay received. Pay was climax of six or eight months of logging and driving, only at the long season's close. Then, for men drier than codfish, came the deluge, the spree to end all sprees.

Farmers might sell as much milk as they liked. So, later in this particular drive, my employer dealt it out liberally to a number of drivers. When it came to a settlement for the sweet, rich output of his Guernseys, one smartweed produced a twenty-dollar bill, knowing George could never change it. Upon the farmer's protesting, the young husky simply shrugged, whirled, and departed, pleased with himself for having bested a mere farmer.

Back in the logging camps where lumberjacks had felled and yarded the trees all fall and winter, these rivermen had chanted a little ditty:—

> "Sour Monday morning.
> Bitter Tuesday.
> Wednesday, the middle of the week.
> Long-legged Thursday.
> Friday will you never be done?
> *Sweet* Saturday night!"

Whatever prospect of rest made Saturday "sweet" in the woods, there would be no Sunday halt during a drive. Logs must march in spite of tolling church bells in Universalist and Methodist steeples. "Come-to-church, come-to-church" —the Sabbath call of the bells pealing slowly above the serene hillsides dotted with white frame houses and red barns went all unheard. It was the churchgoers who went to the river—and by the hundred. Along with them went young Jim Frye, plus every lad round about who could hike ten miles or wangle a ride in a springless farm wagon.

Every last man, woman, and child in Concord—or so it seemed—curiously scanned the goings on in their stretch of river. With jaunty bravado, a young driver would sail along on a bucking log, his cant-dog securely grasped lest he lose it and be forced to pay for another. Or running lightly over shifting bands of loose logs, another gained the opposite bank. If a jam built up—and how all of us boys fervently hoped it would—rivermen were bound to risk their lives on the jagged, swiftly rising pile which shook as each new log was hurtled against it and

"It's up to stay! Storms haven't fazed our Butler building. It has required no maintenance."

"Cleaning seed grain is easy because we can bring the fanning mill right into the grain bin."

"Here's how our BUTLER steel building earns 12 months a year"

says T. S. Cunningham, Superintendent of Sandy Land Research Station of Oklahoma A & M College, Mangum, Oklahoma

"**In winter,** our Butler building keeps farm equipment safe and dry—free from rust and corrosion. It's no trouble to drive through the big doorways with combines or hay wagons. The post-free interior makes it easy to park and move equipment or to take it out of the building.

"**In spring,** the shop in our Butler building works overtime as we ready stored equipment for field work. This saves money and helps us keep implements readied for experimental farming that won't wait!

"**In summer and fall,** our tight, dry Butler building gives us a safe place to store grain. This is important because most of the grain we raise is used for seed."

All year around, Butler buildings are at work housing implements, repair shops, livestock, feed and grain. They are helping farmers improve their efficiency . . . making their work easier, more productive, for new profits.

See your local Butler dealer for more facts on Butler farm buildings. Let him show you a few of the Butler buildings at work on farms in your community. Send coupon for his name and free folders by mail.

BUTLER MANUFACTURING COMPANY

Manufacturers of Oil Equipment • Steel Buildings
Farm Equipment • Dry Cleaners Equipment • Special Products

Factories located at Kansas City, Mo. • Galesburg, Ill.
Richmond, Calif. • Birmingham, Ala. • Minneapolis, Minn.

For prompt reply, address office nearest you:

BUTLER MANUFACTURING COMPANY

7378 East 13th Street, Kansas City 26, Missouri
978A Sixth Avenue, S. E., Minneapolis 14, Minnesota
921 Avenue W, Ensley, Birmingham 8, Alabama
Dept. 78A, Richmond, California

Please send me the name of the Butler dealer in my community. Also free folders on Butler steel buildings.

Name .....

Address ..... County .....

P. O. ..... State .....

Mister, You Are So Right! You've Got The Best Elevator Value Money Can Buy When You Own a . . .

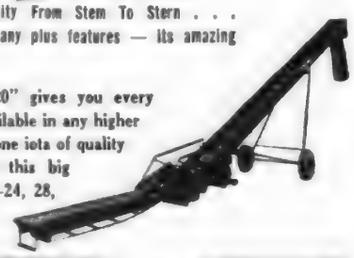
CARDINAL

"Skipper 20"

WITH BIG 20" TROUGH

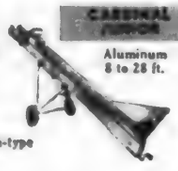
It's Top Quality From Stem To Stern . . . Compare its many plus features — its amazing low price.

Cardinal "Skipper 20" gives you every operating feature available in any higher priced elevator. Not one iota of quality has been sacrificed to bring you this big money-saving value. Trough lengths—24, 28, 32, 36, 40 and 44 feet.

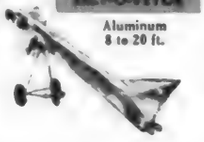


TOP VALUES IN THE CARDINAL JUNIOR LINE, TOO!

CARDINAL JUNIOR — Aluminum 8 to 28 ft.



CARDINAL BELT-O-VEYOR — Aluminum 8 to 20 ft.

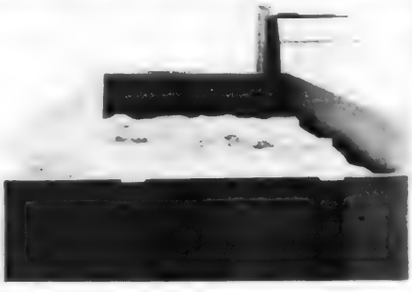


CARDINAL CHOR-BOY — Galvanized 12 to 28 ft.

Choice of dolly or winch-type chassis; fits all models.

SEE YOUR CARDINAL DEALER OR WRITE FOR FREE LITERATURE

LML ENGINEERING & MFG. CORP. 621 S. Chauncey Street, COLUMBIA CITY, INDIANA



DRY YOUR GRAIN OVERNIGHT WITH A PEIRSON-MOORE DRYER

A Peirson-Moore Dryer can dry in a night the grain one machine gathers during the day. Two wagons full of grain can be dried at the same time by one machine—for only a few cents per bushel—and it keeps your grain harvesting going 24 hours a day. Built of quality materials, the Peirson-Moore Grain Dryer will give you many years of superior drying service.

Dealer Inquiries Invited

Write today for complete information

PEIRSON-MOORE CO., Inc.
Lexington, Kentucky

WANT GREATER BEEF CATTLE PROFIT?

Here is what a SHORTHORN or POLLED SHORTHORN bull can do to increase beef herd efficiency:

***increase* weaning weights 50 to 100 pounds . . . *increase* calf crops 10 to 15 per cent . . . *increase* yearling weights 100 to 200 pounds . . . *increase* mature cow weights 100 to 200 pounds . . . *increase* grazing efficiency and traveling ability . . . *increase* milk in replacement cows . . . *increase* resistance to heat, cold, pink-eye, cancer eye and other infections . . . *increase* carcass value . . . and finally, *increase* market returns by bringing higher prices for weight.**

Write for literature and sale dates today

AMERICAN SHORTHORN BREEDERS' ASSOCIATION Dept. FQ, 7 Chicago 9, Ill.

momentarily changed shape. Before us moved hero-stuff.

Balance saved cat-active men, timing every motion to synchronize with the surge and pitch of racing timber. I'd learned about body balance that very spring by way of some home-made stilts.

Balance, however, failed to save some of the gang. Accordingly, one exciting afternoon I happened upon a bedraggled, wet driver gasping as he lay prone on damp grass. A small jam having built up, he had tried his hand at working free logs crisscrossed into a giant heap of jackstraws. The sides of the jam were not yet closed together; a narrow, swift channel of water flowed between them. Into this the man sprawled, letting fly his heavy peavy. And instantly he was pulled below the log-pile by the fast current.

Shouts arose. Men ran to the rescue, but were helpless, for he was drowning beyond reach. Stationed in a rowboat somewhat below the jam, a man with a set pole stood propelling his boat with long, awkward sweeps of this single pole. At once he tried frantically to save his comrade. Now he poled to the right, now to the left, the sides of the shaft glistening as he drew it up from the river's bed. Through the murky water, churned by the passage of thousands of logs until it was completely roiled, he could see nothing. Suddenly he felt a tug. As the half-drowned riverman shot downstream, the boatman slid his pole right past the frightened face of the river's near victim, who had presence of mind enough to grab it with both hands. Hauled ashore and placed on the ground to recover, I came upon him. He lay pinch-faced, limp after his rub and a go with death. His eyes were glazed, only half-seeing; had his father found him just then the son would not have known him from a bag of wool.

Supper on a Tinplate

At dusk, drivers turned towards camp, ravenous and ready to snatch up the first handy tinplate to shove under a cook's generous ladle. They sat on logs or river-bank gulping down in two shakes of a lamb's tail the mouth-watering beans, yellow gingerbread, hot biscuits, flap jacks, fried eggs, chowders, boiling tea or what-have-you which cook provided. No gang lingered long with us, for those men upstream took the place of those farther down; yet each riverman was sufficiently like the last to be a blood brother, even to the ever-present louse inhabiting his undershirt. Sometimes at twilight, a man would yank this lively vestment over his head and unashamedly pick out lice therein—or in lumberman's parlance "read his shirt." Others would wearily slump on a mattress. Still others with left-over zip, tuned up to wavering note's of a Jew's harp or harmonica, half-singing, half-shouting a lumberman's chanty brought from Maine logging camps or Canadian wilds. Little spurts of flame showed that pipes were being lighted. A sportive pair,

Can HYBRO-TITE*

free the captive nutrients

in your soil?

Read this report of a two-year test by Mrs. John B. Bauer, La-Z Valley Apiaries, St. Mary, Kentucky

FIRST YEAR: WONDERFUL GRASS! "The St. Catherine Academy Farm put 15 tons of Hybro-Tite on 15 acres of Kentucky Fescue...the stand was wonderful. They pastured 20 Jersey milk cows on this field," wrote Mrs. Bauer, just a year ago.

SECOND YEAR: (AFTER MONTHS OF DROUGHT) Mrs. Bauer says, "The dairy herd has been on the field all winter—there was nothing else to graze on. On our own farm anyone could tell where Hybro-Tite was placed on tobacco ground. *It is very outstanding.* We turned our wheat and vetch, which stood better than knee high, on March 26 this year. Our pastures are magnificent. Only wish we could influence others to try Hybro-Tite."

Mrs. Bauer is enthusiastic about Hybro-Tite! She says, as many other users do, that it improves yields of many crops...and, further, the benefits carry over from year to year!

Hybro-Tite is the natural rock soil conditioner containing potash and 19** trace minerals of importance to healthy, vigorous plant growth. In effect, they often free the captive nutrients—may "unlock" the growth-promoting elements in the soil...make them available as plant food.

MINERALS IN HYBRO-TITE are released gradually. Hybro-Tite does not leach out of sandy soils. It has great holding power... its effectiveness and benefits may last from five to seven years.

THIS LONG-TERM SOIL CONDITIONER is very economical—you can afford to apply it to all your acreage. Easy to apply, too! Spread it as you would lime...on pastures, orchards, gardens, wheat and other fields, or wherever you have a soil building job to do.

TRY HYBRO-TITE YOURSELF! Put it on this fall! See whether its potash and 19 trace minerals can set free the captive nutrients in your soil...help you to get better yields, or bring worn-out or problem soils into more profitable production.

*Trademark of Potash Rock Company of America, Inc.

**Potash—plus aluminum, silicon, sodium, titanium, calcium, phosphorus, magnesium, iron, manganese, strontium, yttrium, silver, zinc, zirconium, lead, chromium, nickel, copper, vanadium.

FREE BOOKLET

Get your copy of this valuable booklet, "Nature's Own 20-Mineral Soil Conditioner," for facts about low-cost, easy-to-use Hybro-Tite. Write Charles L. Davidson, President, today.

Mr. G. O. and Mr. J. T. Coward give credit to Hybro-Tite for fine condition of these trees.

BEST GROWTH IN EIGHT YEARS, says FLORIDA CITRUS GROWER

"We purchased a car of Hybro-Tite to be applied on one of our groves near Haines City. So pleased are we with the results we are sending you a photograph showing the fine condition of these trees.

"All our Hybro-Tite treated trees look better for this time of year than during any of the 8 years we have owned them.

"Hybro-Tite has done more good than anything we have ever used, and at less cost." — J. T. Coward, Lakeland, Florida.

HYBRO-TITE BENEFITS MANY CROPS, MANY USERS SAY

157 BUSHELS OF CORN PER ACRE—"Today I received my official 5-acre corn yield report for 1953. My yield is 157 bushels per acre... The Hybro-Tite surely played an important part."—T. W. Hilligoss, Shamrock Seed Farms, McCordsville, Indiana.

BETTER VEGETABLES — "This is the second year Hybro-Tite and phosphate have been applied to the garden. Each year the vegetables grown were better than those of the previous year... Sweet-corn and tomatoes are the best this garden has ever produced."—G. H. Rarey, Decatur, Ga.

BEST ALFALFA—"Our pastures are the best they have ever been and the alfalfa crop was one of the best we have ever had. I am firmly convinced that Hybro-Tite is well worth the cost of purchase and application."—Rev. Victor B. Hann, Supt., Methodist Home for Children, Mechanicsburg, Penna.

10% MORE MILK—"Where the Hybro-Tite was applied, we received excellent growth... and an increase of about 10% in milk production while grazing that plot."—O. A. Bailey, Bailey Dairy, Pensacola, Florida.

Order Hybro-Tite Now!

It's inexpensive! Apply now... ready to benefit your crop next Spring. Get it on early! As Hybro-Tite "weathers" its vital elements gradually become available to help grow better yields of grains, grasses, row-crops, fruits and vegetables.

POTASH ROCK COMPANY OF AMERICA, INC.

Dept. FQ-F, Lithonia, Georgia

Professional farm management can greatly boost your profits

Get the Opekasit story of managing farms as profitable business enterprises by an organization of practical specialists. 24 years of successful experience applied to your problems.

Opekasit service is available in a number of forms — complete management, consultation, tenant supervision, engineering, construction, appraisals and accounting. Highest references, including facts and figures from highly pleased users of our services.

FREE LITERATURE

Please write or phone our nearest office.

OPEKASIT Incorporated

Hamilton, Lebanon, London, Continental, OHIO. Bath, INDIANA. Georgetown, KENTUCKY. Charlottesville, VIRGINIA. Albany, GEORGIA (also serves Alabama and Florida).

VIRGINIA LANDOWNERS — SPECIAL NOTICE!

Opekasit farm management, appraisals and supervision services are now available to Virginia landowners through a local office headed by two experienced Virginia farm managers. For detailed information please address:

PIEDMONT - OPEKASIT, CHARLOTTESVILLE, VA.

FASTER GAINS . . . HEAVIER HOGS IN WINTER with CELINA Never-Freeze HOG FOUNTAINS

Hogs make faster weight gains in winter—if feeding is supplemented with plenty of fresh warm water . . . this can be supplied economically with CELINA Never-Freeze Hog Fountains. Built of heavy gauge steel for long life, CELINA Never-Freeze fountains save feed—time and money. Double wall construction prevents freezing. Available in two models: Vacuum Type without float valves, or Automatic Float Valve Type. Capacity, 3 bbls. Either type thriftily heated with kerosene, or electrically with thermostatic temperature control.

It will pay to see your CELINA dealer today . . . get the facts why CELINA Never-Freeze Hog Fountains are the finest and why they are preferred by most leading hog raisers.

THE CELINA MANUFACTURING CO., CELINA, OHIO

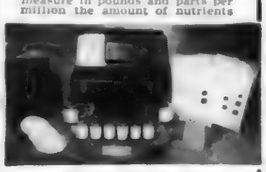
Did poor soil fertility limit this year's profits?

DON'T BE THE DISCOURAGED FARMER

LET *Simplex* INCREASE YOUR PROFITS!

Without a properly balanced, fertile soil you cannot obtain the large crop yields required for greater profits. Accurate soil testing will determine the correct fertilizer and the proper amount to be applied for increased soil fertility, larger yields and greater profits.

COMPARE before you buy . . . make sure the soil tester you purchase can measure in pounds and parts per million the amount of nutrients present in the soil and can enable calculation of the exact fertilizer addition required . . . be sure the soil tester of your choice contains the ammonium test, so essential in determining the total available nitrogen content of the soil. All soil testers do not include these features . . . Simplex does. In fact, the Farm Simplex Soil Test Outfit illustrated is the smaller of the three complete all Simplex Soil Test Outfits, is lower in price than another make, yet it contains the above named features.



SOIL TEST OUTFITS

DESIGNED FOR USE BY THE AVERAGE PERSON . . . NO CHEMISTRY KNOWLEDGE REQUIRED

Write today for free catalog . . . and a copy of "The Fable of the Discouraged Farmer"

THE EDWARDS LABORATORY • P.O. BOX 318-D • NORWALK, OHIO

each trying to throw the other for a fall, wrestled, collar-n-elbow.

Rising over Waterford Hill, the sickle moon peered primly down on this relaxed scene. The frogs, rejoiced at their release from icy ponds, would sound off in the thickets in their own choral. Darkness fell. It was all very different from Concord's usual staid routine.

Those drives ended forty years ago. I'm glad I experienced them, glad I saw those reckless rivermen with grace to equal their derring-do. I'm glad also to have stood shyly waiting with my cronies for the cook's call to down supper's inevitable leftovers.

THE AUTHOR: James D. Frye is probably our oldest contributor, having just passed his 86th summer in Vermont. He reports a wonderful apple crop this year. The Northern Spies are particularly juicy. Readers will remember his previous contribution, *The Friendly Meal*, which traced Jim Frye's barefoot steps through the pastures and orchards of his uncle's farm when he was a boy of nine.

ICE CONTROL

(*Continued from page* 65)

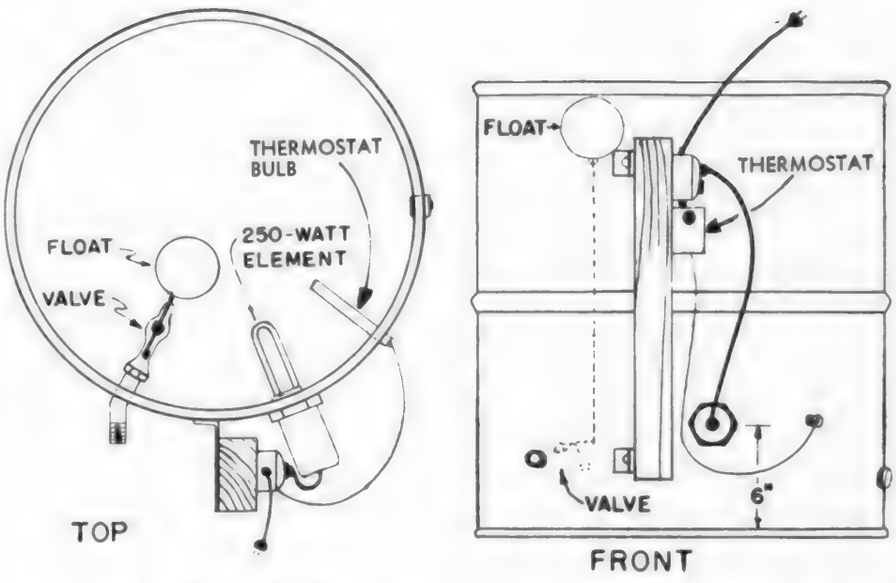
stat built in the bowl, this is probably the most efficient of all the electric heaters. By the use of a float valve, treadle or needle valve, only enough water enters the bowl as will be consumed by the animal at the moment. There is seldom more than a quart or two of water in the vessel and this, together with the upper end of the water pipe, is all that needs to be kept ice-free. This kind of unit requires a water system on the farm. The stock must also have continual access to the bowl; they cannot be watered in a group.

The bowls are placed about 26 inches high for cattle and 9 to 12 inches above the ground for hogs and sheep. They have a wattage rating of 150, which means they can operate continually for 3½ to 4 hours on one kilowatt hour.

An automatic system is an impossibility without water under pressure, of course; and a pressure system means that the water must be piped from its source to barn or feedlot. The pipes must be laid below frost line, 2½ to 3 feet below the surface in most of the northern United States, to prevent damage from freezing. A new wrinkle here is the use of plastic pipe which can be bought in lengths up to 250 or 300 feet and laid on the contour or around corners without cutting or threading. Plastic pipe is not damaged by freezing. The worst that can happen, if the water freezes, is that the flow is stopped. The pipe returns to its normal size and shape with no sign of damage as soon as it is thawed out. Some farmers lay plastic pipe by simply plowing a trench, running the plow down the furrow twice to give it depth, and dropping in the pipe.

Wherever it is necessary to have pipe exposed, electric heating tape, commonly known by the trade name Thermotape, can be wrapped around it to prevent freezing.

4. The heat lamp. This is more or less a temporary or emergency unit. A 250-watt heat lamp is hung 24 to 30 inches above the water in an open tank



and the heat keeps a hole open in the ice. Even this device can be made to operate automatically by floating a thermostat on the surface of the water. Since water freezes at the surface first, heating the surface heats all.

Prices on these electrical devices vary widely. Manufacturers are listed at the end of this article for details and prices.

Build Your Own

Those who would like to try their hand at building their own automatic waterer and de-icer will find the plan developed by the University of Idaho and illustrated above very practical. This unit a is made from a 55 gallon drum and uses a 250 to 1,000 watt submerged heating element and thermostat. Materials should not cost more than $35 and consist of the following:

1—55 gallon steel drum

1—wood and metal bracket

1—250 to 1,000 watt hairpin type heater element and thermostat

FARMERS TESTIMONY

FIRST
F-L-E-X-I-B-L-E
TINE HARROW

We want to send you copies of letters from grateful farmers in praise of this amazing tine harrow. Here's a low cost implement that stimulates vigorous pasture growth . . . scatters cattle droppings . . . finishes seed beds . . . and can be used as a chain harrow. Find out about this year-round, all-around farm tool.

SEE YOUR DEALER OR WRITE

FUERST BROTHERS
(NEW YORK) INCORPORATED
19 Rector St., New York, N. Y.

Why carry water?

Extend your farm water system easily with *ClearStream plastic pipe*

Think of the places on your property where water on tap will save back-breaking work, hours of time, and increase profits, too. Why delay? It's so easy today to run cold water lines to barns, fields, stock pens, gardens, water troughs, anywhere. And the cost is less than you think.

All you need is Yardley ClearStream pipe and a few standard fittings. But, remember, all plastic pipe is not the same. Only Yardley — the guaranteed-quality pipe — is PressuRated to 75 lbs. and designed specifically for farm water systems.

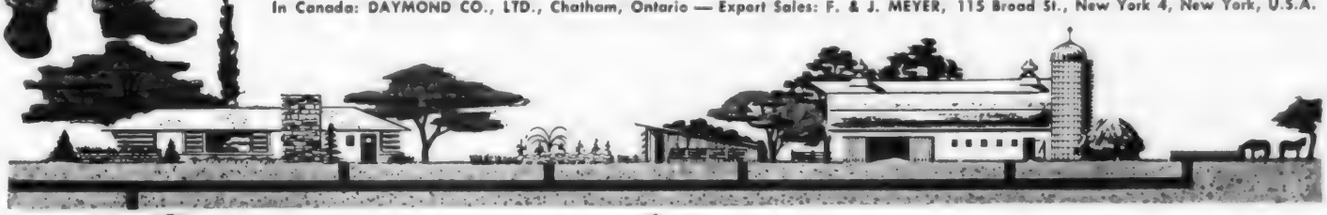
Flexible coils up to 400 ft. follow any contour, lay up fast with simple tools. Accept no substitutes. The Yardley ClearStream name, size and PressuRating are permanently stamped right on the pipe.

PURE POLYETHYLENE

ClearStream contains only the best virgin material; has all other plastic pipe advantages — ⅛ the weight of steel — costs less to install — won't rot, rust or corrode. Ask your dealer.

YARDLEY PLASTICS CO., 142 Parsons Ave., Columbus 15, Ohio

In Canada: DAYMOND CO., LTD., Chatham, Ontario — Export Sales: F. & J. MEYER, 115 Broad St., New York 4, New York, U.S.A.



BOXED PIPE—The four most-used sizes are available in 100-ft. coils individually packaged.

THE BIG ADVANCE in plastic pipe is PressuRating. This Yardley improvement assures the same safety factor in every size. Install for the future.

SEND FOR FOLDER which also describes Yardley Pump Pipes — Twin-du-it for jets — Sub-du-it for submersibles.

Go Automatic with CO-OP® Universal Walk-Thru SANITARY PIPELINE MILKING SYSTEM

Don't be a TWO-TON milk lifter

If you have a good average herd, your daily "milk lifting" will total a couple of tons . . . lifting, carrying, straining and cooling. With a Universal Walk-Thru Parlor System the milk is conveyed from cow to cooler automatically through a glass or stainless steel pipeline . . . and is not exposed to barn odor or contamination. Filtering is done in the line. System is washed and sterilized in-place mechanically. Cows are elevated which makes milking much easier. Semi-automatic feeding is optional. You get quality milk production with less effort and cut milking time way down . . . that's muscle saving profitable dairying . . . whether you milk 12 cows or 500. That's why America's finest dairy farms choose Universal.

ADAPTABLE TO ANY COOLING METHOD . . . can storage . . . bulk tank . . . or aerator.

Shown is Universal's advance design Releaser which delivers milk into bulk cooling tank or over aerator. Easy to clean. Simple, positive operation.

FREE PLANNING KIT

A helpful guide in planning your own Milking Parlor System. Ask your Universal dealer or write for your copy.

Universal MILKING MACHINE DIVISION • NATIONAL COOPERATIVES, INC.

5049 First Avenue, Albert Lea, Minn.

Branches at: Waukesha, Wis., Syracuse, N. Y.

BACKED BY 39 YEARS OF MILKER MANUFACTURING "KNOW-HOW"

for that TOUGH FALL PLOWING JOB...

TWO blades cut better than ONE!

that's why **LANTZ** Reg. U.S. Pat. Off.

is your best Coulter buy

*(See official tests below)

Over a hundred thousand farmers have used and praised the original Lantz Kutter-Kolter during the past 15 years. Only Lantz makes 2-bladed coulters. Two blades produce a double slicing action . . . enable a moldboard plow to cut through trash, roots and stubble and aid in covering. You avoid frequent stops to clear a clogged plow . . . Lantz Coulters save their own price.

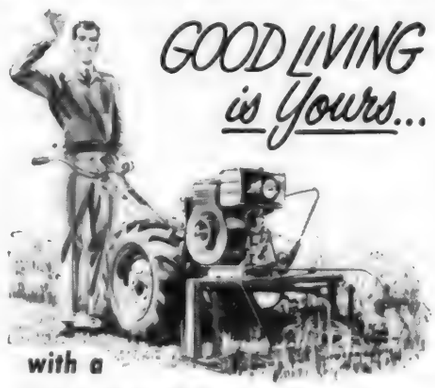
NEW MODEL "B" LANTZ KOLTER

New engineering developments based on 15 years experience as coulter specialists, give the Model "B" (shown below) greater adaptability to plows with limited clearance, also to certain *left-hand or 2-way plows.* Model "B" 16" size recommended for Ford-Dearborn and Ferguson Plows. Disc blade crosses path of coulter blade to give rotary scissor action without binding. (See arrows in cut.)

*Dynamometer tests (recorded lbs. pull) prove that Lantz 2-bladed Coulters pull no harder than other special coulters. They save costly friction and wear on landside of moldboard because they produce less side draft than other special coulters. The Kutter-Kolter can be used as a single-blade coulter where trash is no problem.

Write for free folders: Lantz Kutter-Kolter; Model "B" Coulter; Lantz Swinging Sickle Grinder.

LANTZ MANUFACTURING CO., Inc., Dept. CJ-538, Valparaiso, Ind.



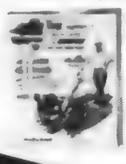
GOOD LIVING is Yours...

with a

DANDY BOY

year 'round Garden Tractor

The easily controlled, abundant power of a Dandy Boy lets you breeze through mowing and over 40 other jobs. You gain more leisure time to enjoy life . . . enjoy your lawn and garden. *Good living is yours.*

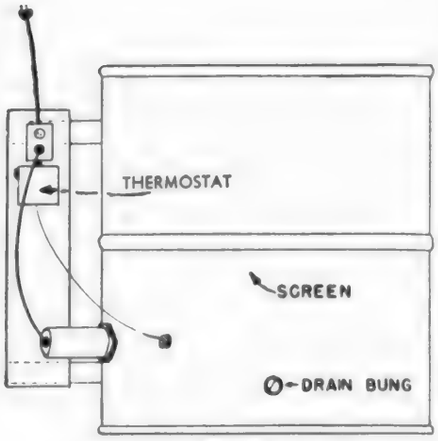


FREE

Today, write for catalog about 2½, 3 and 5 hp. models, 5 forward speeds plus reverse . . . also, nearest dealer's name.

THE MIDLAND CO.

South Milwaukee 6, Wisconsin



SIDE

1—water tap-valve and float mechanism with chain and float

Electrical outlet and wiring connections

Screen wire or hardware cloth on circular frame

Lumber to box in controls and insulation

Don't forget to ground all electrical heaters. Consult your local power supplier about the correct wire size to use and fuse with a 15 to 20 ampere fuse.

Manufacturers and Distributors of Heaters for Stock Tanks

Electric—

H. D. Hudson Manufacturing Co., 589 E. Illinois St., Chicago, Ill. (Also gas, oil, and solid fuel)
James Mfg. Co., 104 W. Milwaukee Ave., Ft. Atkinson, Wis.
National Ideal Co., Toledo 6, Ohio (Also gas and oil)
Rhinehart Mfg. Co., Inc., 1127 Polk St., Ft. Wayne, Ind.
Ritchie Mfg. Co., Conrad, Iowa (Also gas and oil)
Siebring Mfg. Co., George, Iowa (Also gas, oil, and solid fuel)
Sterling Mfg. Co., Omaha, Nebraska (Also gas and oil)
Warner Brooder Corp., P.O. Box 180, North Manchester, Ind.

Gas—

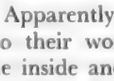
Johnson Gas Appliance Co., Cedar Rapids, Iowa.
Makomb Steel Products Company, Macomb, Illinois (Also oil)
Quinn Wire & Iron Works, Boone, Iowa
Tucker Mfg. Co., Inc., Cedar Rapids, Iowa

Oil—

Farmer Feeder Co., Inc., Cambridge City, Ind.
McKinley Manufacturing Co., Monticello, Ill.
Progressive Foundry Co., Inc., Perry, Iowa (Also solid fuel)
Queen Stove Works, Inc., Albert Lea, Minnesota
H. M. Sheer Co., 419 Payson Ave., Quincy, Ill. (Also electric)

Solid Fuel—

The Butler Co., Butler, Indiana (Also oil)
F. B. Dickinson & Co., 8000 University Ave., Des Moines, Iowa
Elgin Windmill Co., Elgin, Ill.
Sioux Motor Cleaner Mfg. Co., Beresford, S. Dak.



TERMITES

(*Continued from page* 35)

over with mud. Apparently over-ambitious workers, new to their work, have bored too far from the inside and have exposed themselves to the light. A mistake like this is soon corrected by the application of mud plaster.

Now what is the connection between the infested joists and the front porch? Because termites avoid light, require moisture daily, dislike ventilation, and need protection from their enemies, the soil beneath the porch is a perfect spot for unmolested activity. But how, you will ask, can ter-

mites eat through the porch to gain access to the joists? Of course they do not eat any hard material like concrete, brick or stone, but they do get through an aperture as small as a fraction of an inch. Concrete contracts upon drying and the slab pulls away from the wall far enough for entrance; or if the porch slab has a bearing on the top of the foundation wall, the termites crawl between the bottom of the slab and the top of the wall. The wall is not perfectly level and neither is the bottom of the slab, which allows for sufficient travel space.

We also inspect the wood partitions that surround your coal bin, fruit closet and lavatory, or any place where wood is in contact with the concrete basement floor. Door frames and basement steps are also checked, for at all these places it is possible for termites to come from the soil beneath the basement floor and infest the wood.

If you have a new home and termites come to visit you within a year after moving in, you know that they were already well established in the soil before your house was built. Their appearance was due to construction errors rather than "bad wood."

Frequently, before basement partitions are installed, the carpenter drills holes through the floor and drives wood pegs in these holes, flush with the floor, and anchors a wood plate by driving spikes through the plate into the pegs. This construction of wood in contact with the soil is an invitation to termites.

The solid foundation walls themselves may be an entrance point. Look for spreader blocks left in the wall or cracks in the wall. If termites are in these areas you will see the mud shelter tubes and there will likely be a swarm in the spring. Much to the surprise of the home owner, unexcavated concrete porches, uncapped hollow block walls, furred basement walls and stucco houses built close to the ground line are a few of the types of construction that are most vulnerable to termite attack. It is advisable to check your home once a year, preferably in the spring or summer. Termite activity is at its greatest height in the early spring.

Don't be misled into a feeling of security because you only had one swarm of termites and you haven't seen any since. If they came from a young colony they will emerge only once the first year. After a colony has become established they may swarm as many as four times from each colony.

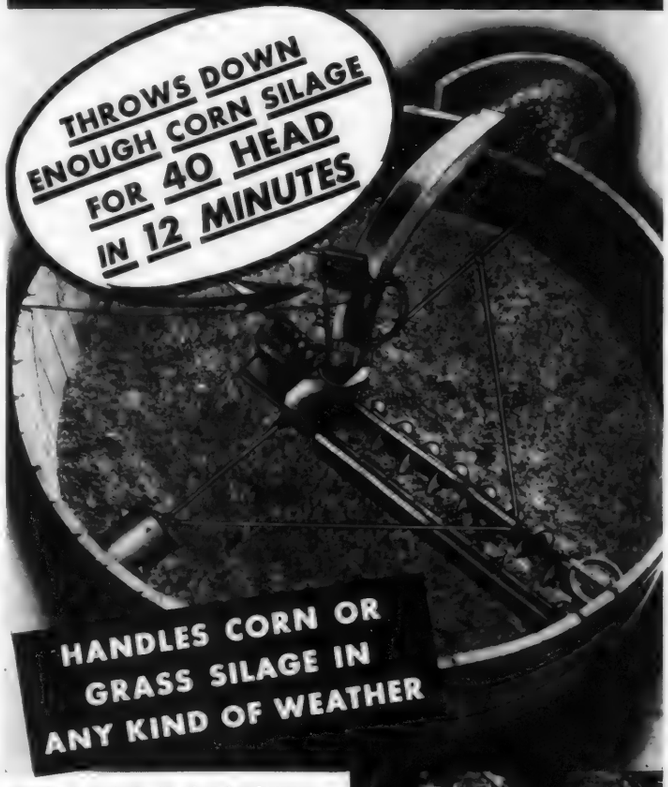
Do It Yourself

You can treat your own home, especially the minor infestations. Termite control work is just applied common sense. There are no secrets. The basic thing to remember is that termites originate in the soil and must have daily contact with the soil or they will die. It is the soil or point of origin that must be treated. The damage you see in the garage door frame (slits in the wood) or the shelter tube that is visible between the frame and concrete wall is sufficient evidence that you have termites in that area. In all probability they have come from a crack in the floor or possibly your door jambs extend into the concrete. If the latter, cut off the frames a couple of inches from the floor, drill two holes through the floor near the frame and soak the soil beneath the floor with a termite chemical. Shove some concrete under the cut-off door frame and you can forget the whole incident.

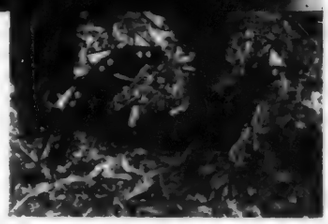
But let's look at the front porch that we inspected. The infestation in the joists directly opposite the porch is sufficient evidence that the source of the trouble is the soil under the porch and it is in this area that soil chemicals must be applied. Spraying the wood regardless of how good the chemical may be, will not stop the termites for very long. Termites will build their shelter tubes over the treated wood to the subflooring or other untreated wood.

How to make the application is another problem, since porch construction varies considerably. If the porch is hollow (and that can be determined by drilling a small hole vertically through the slab and inserting a rod through the hole) then it is best to cut an access opening through one of the porch foundation walls or cut the opening through the basement foundation wall. Then old forms may be removed, the soil can be treated and the opening provides for future inspections. If the porch is unexca-

CLAY NEW ELECTRIC SILO UNLOADER



Push a switch in the feed room ... no matter how cold or wet it is outside ... *AND POWER-PITCH YOUR SILAGE RIGHT INTO THE CART—IN MINUTES.* No more forking silage in a freezing, windy silo with icy silage flying down the back of your neck, getting into your eyes. No more chopping loose heavy chunks of frozen silage and having the cows waste them. No more daily climing and crawling up icy, dangerous silo chutes and through small doors.



● Auger knives chop up hardest packed or frozen silage. BRING DOWN A FLUFFIER AND MORE PALATABLE FEED. Delivers it at the rate of 100 to 150 lbs. of corn silage per minute.

A CLAY SILO UNLOADER ELIMINATES ALL THESE LONG BACK-BREAKING CHORE HOURS. SOLVES THE LABOR SHORTAGE. KEEPS SMELL OF GRASS SILAGE FROM WORK CLOTHES. DOES IT ALL WITH A FLICK OF THE SWITCH.

Unloader is furnished complete with motor, spout, and tripod for mounting. Costs less than you think. Write for complete facts.

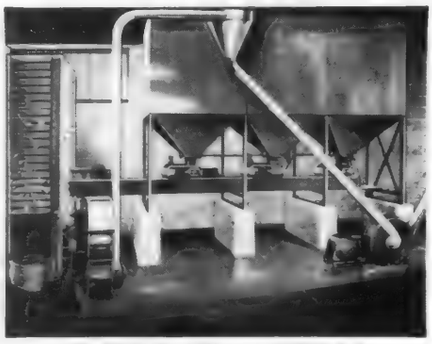
FREE LITERATURE

CHECK AND MAIL TODAY

CLAY EQUIPMENT CORPORATION
947 Fulton St., Cedar Falls, Iowa
Gentlemen: Please send me literature:

CLAY
☐ Silo Unloader ☐ Barn Windows
☐ Comfort Stalls ☐ Hay & Corn Drying
☐ Barn Cleaners

NAME_____
ADDRESS_____
CITY_____ COUNTY_____ STATE_____



BELL'S NEW

FEED-O-MAT

FULLY AUTOMATIC
FEED HANDLING SYSTEM

Empties Cribs and Bins—Blends ingredients for Balanced rations—Grinds, Mixes and Delivers Feed to the point of use—

ALL THIS WITHOUT HAND LABOR! PUSH THE BUTTON—the electric Automatic Control takes over! Time Switch automatically stops Feed-O-Mat at end of predetermined grinding time . . . Any combination of corn or grains can be handled with equal ease with this time saving piece of equipment on your farm. Available now at extremely moderate cost. Drop a card for full information, and name of your nearest Bell Distributor.

THE C. S. BELL CO., MFRS.
HILLSBORO, O. - Since 1858

WATER LINES
INSTALLED
Quick and Easy!
with
PLASTEX
Measure Marked
T.M.
PIPE

Use this lightweight, flexible, corrosion proof pipe for drinking water, irrigation or drainage lines. Install it yourself in a jiffy . . . it's marked and measured every 10 ft. for extra convenience. Smooth surface gives greater flow, never collects scale, lasts a lifetime. Folder on request.

Ask for
PLASTEX
at your Hardware, Plumbing or Farm Supply

PLASTEX
PIPE & EXTRUSION CO.
404 Mt. Vernon Ave.
Columbus 3, Ohio

"Do-it-Yourself" with PLASTEX

vated and built very close to the ground, it will be necessary to drill approximately half-inch holes through the porch slab, about a foot apart, and as close to the foundation wall as possible. Then you are ready to treat the soil beneath. The drilled holes are refilled with concrete.

You may not find termites in the basement, but only a mud tube on the outside of the foundation wall. At this location they cannot do any harm until they build the tube far enough to reach the wood. In this case, treat the soil for ten feet on either side of the mud tube by digging a shallow trench next to the foundation wall and applying chemicals according to directions. Usually a trench twelve inches deep will be sufficient.

Proper construction is the answer if termites are to be kept out of buildings. But once they are in, some remodeling is often necessary. Plastered basement partitions may be cut off at the base about six inches from the floor and reinstalled upon a solid concrete curb. This is a more permanent method of treatment than chemical treatment beneath the floor, but it is more costly. Costs are often the determining factor in deciding how a termite job will be done.

If you want to treat your own house you can use 5 per cent pentachlorophenol in oil, oil soluble trichlorobenzene, 10 per cent sodium arsenite in water, or 2 per cent chlordane in water. Recently, 2 per cent chlordane emulsion in water is being used with good results. It will not harm shrubbery.

Here is the way it is done: 1. Dig a trench along foundation wall, going down a foot or more. 2. If you are using chlordane, the mixture depends on its concentration. A common one is 44 per cent. Mix ½ gal. of this with 10½ gals. of water. What you want to use is a 2 per cent solution. Apply 1 gallon per linear foot.

In applying, pour one-third of the chemical on the bottom of the trench: fill the trench halfway: pour in another one-third of the chemical: fill trench, and pour the remaining on top of the soil.

Any water soluble product must be used when the soil is very dry, particularly in clay subsoils, otherwise it will puddle and will not penetrate the soil as readily as oil types. Creosote, although a good wood preservative, is not a good soil poison, since its effectiveness in the soil is limited to about one year.

Soil chemicals used in termite control differ from ordinary household insecticides in that the fly or roach spray is used to *kill* insects, whereas a termite chemical is used as a soil poison to keep termites from living in the treated area, and little emphasis is placed upon killing power. Termites cut off from their moisture will soon die. For this reason infestations in the second floor require treatment only at soil level.

Locating the nest and destroying the queen does not terminate termite troubles. Nature thought of that possibility first and

Many farmers
USE NO WATER
with this inoculant

These men observed how perfectly the fine, free-flowing humus base of LEGUME-AID coats and clings to dry seed. They now regularly apply this potent inoculant on everything from clover to soybeans, without first wetting the seed.

LEGUME-AID

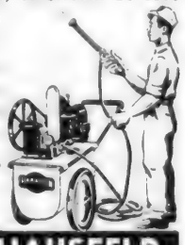
Whether planting clover, alfalfa, lespedeza, peas, beans, lupines or any other legume, it pays to assure maximum nitrogen fixing power by treating seeds with the famous "Inoculant in the Carton." LEGUME-AID is neither sticky nor gummy. It pours freely, clings to seeds closely, yet never clogs the drill. Ask your seed dealer, or write us direct.

AGRI-LAB, INC.

AGRICULTURAL LABORATORIES, Inc.
1310 Chesapeake Avenue Columbus 16, Ohio

easier with new
PARAGON Power Sprayer

One man with this compact 12-gal. Paragon can *effectively* spray insecticides, disinfectants, weed killers, whitewash, water-based cement paints. Latest type spray gun produces mist for wide coverage, or stream 25 feet high. Pump delivers up to 1½ gals. a minute. Low priced. See your dealer or write for literature on hand and power sprayers.



Campbell-Hausfeld Co.
21 State Street
Harrison, Ohio

CAMPBELL-HAUSFELD

FARMERS' FRIEND

Cushman
SHAFTMASTER 780
TRUCKSTER

500 lbs. cap.
¾¢ per mile
total
operating cost

Cut out waste time lugging materials around your farm! Get the EXTRA power advantages of big vehicle shaft drive and 3 speeds forward; one reverse. Heavy duty welded steel frame, cap. nearly 10 cu. ft., pick up type body—complete with tail gate. Up to 75 miles per gallon—and up to 35 miles an hour. Do your chores faster and easier, save time and money!

● *Sold and Serviced Nationally* ● *See your dealer for free demonstration* ● *Write for free illustrated literature*

CUSHMAN MOTOR WORKS, INC. 948 No. 21st St. Lincoln, Nebr.

constructed the colony in such a manner that if the queen dies there are supplementary queens, one of which is groomed to take her place.

The chemicals used in termite work are considered as good protection for at least five years. Varying conditions will alter the length of time they last. Some partially treated homes have not had a return of termites in more than twenty years. In other cases, completely treated homes have required additional treatment in less than five years. Duration of the treatment depends, for example, upon the disturbance of the treated soil (planting shrubbery) or to the condition of gutters and downspouts. A leaky faucet can in time dilute the soil chemicals to a degree where little poisoning effect remains.

"The incidence of termites" is the lingo used by pest control operators to rate the intensity of termites in any given area. For some unknown reason, they may suddenly burst into activity in areas where they were rare before. Some years ago, a corn field near one of our state universities had a heavy infestation of termites. The termites ate the brace roots, causing the stocks to fall to the ground. Then they went on to eat the pith of the stocks as well as the soft center of the cob. They may even invade a library, eating the pages of books without disturbing the covers.

Vibration is a deterrent to termite attack and for this reason railroad ties are seldom damaged. Unfortunately this fact is misleading to many a home owner who is in the process of remodeling. If a portion of the building is to be restored and termite damage is noticed in some of the timbers, live termites will be absent from the wood. They will return to the soil as soon as hammering or sawing has started. It is erroneously thought that the termites are gone and new timbers are installed, usually without careful construction consideration or soil treatment. The new timbers become a fresh food supply for the termites, which return from the soil as soon as quiet has been restored.

It May Be a Racket

You can be swindled by an unscrupulous termite operator. A termite infestation in your home can wait for several months to give you time to investigate. You can be on your guard when an "expert" tells you he uses chemicals "approved" by the Government. The Government does not endorse chemicals or methods. The statement "We use a hundred gallons more of chemical than any other company" should be an eye opener. All the chemicals can be diluted with oil or water, depending upon the type of chemical used. So don't buy a termite job on the basis of the quantity of chemicals that are to be used.

Some of our leading universities annually give short courses in termite control. Unrestrained operators sometimes magnify these courses into college degrees. Select a company which has been in business a reasonable length of time, one that doesn't make extravagant claims or try to scare you to death.

So-called termite insurance is economically questionable. A reliable company will guarantee its job and provide inspections at a low fee. Guarantees run from one to three years.

Keep the Termite Out

When you build your home take every precaution to keep wood away from contact with the soil, excavate porches and provide ventilation under partially excavated areas (one square foot to each five linear feet of wall).

Metal termite shields used as caps for foundation walls, especially hollow mansonry walls, are a help if properly installed and maintained. These shields do not prevent termites from getting into the house, but force them into the open where they can be seen. Many a home with shields has been treated for termites because of improper installation of the shield. Obviously, lap joints on a slightly uneven wall will not prevent termites from traveling between the laps. Joints should be well soldered or crimped. The non-corrosive shield should extend two inches horizontally beyond the wall and downward at a forty-five degree angle. Inspect it annually to see that someone does not flatten the shield against the wall. It is difficult, if not impossible, for

CLAY NEW Power-Matic*
BARN CLEANER

EQUALS SPEED & EFFICIENCY OF COSTLIEST MACHINES

AT LESS THAN 1/2 THE PRICE

* NOT A HAND GUIDED SCOOP. • NO WALKING TO OPERATE.

Now dairymen with even smallest herds can **eliminate forever the dirtiest, messiest daily job** on the farm with Clay's amazing new cleaner. It costs no more than an ordinary farm size freezer.

- SAME UNIT CLEANS ANY SIZE BARN (10 TO 100 COWS).
- ONE MOTOR SIZE HANDLES 1 - 2 - 3 OR 4 GUTTERS.
- ROPE SWITCH LETS OPERATOR STAND ANYWHERE ALONG GUTTER.
- ONE MODEL (1 H.P. SIZE) DOES ALL THE WORK. LONG-LASTING HEAVY DUTY CABLE PULLS MANURE TO SPREADER.
- MINIMUM INSTALLATION COST.
- NOW MAKE YOUR DAIRY MODERN, PROFITABLE. KEEP HELP HAPPIER. BARNS CLEANER. CLOTHES CLEANER.

Get facts now on how easily, how economically you can install a Clay Power-Matic cleaner.

FREE LITERATURE CHECK & MAIL COUPON TODAY

CLAY EQUIPMENT CORPORATION
941 Fulton St., Cedar Falls, Iowa

Gentlemen: Please send me literature on:

CLAY
☐ Clay Barn Cleaner ☐ Comfort Stalls
☐ Silo Unloader ☐ Crop Drier

I am building_____, remodeling_____

Name _____

Address _____

City_____ County_____State_____

FARM OWNERS!
Are you satisfied with the returns from your farm?

Are you receiving as much income from your farm as you should? . . . Are your crop yields as high as they should be? . . . Is the farm a source of worry? . . . Are expenses too high? . . . Is the fertility of the soil going down? . . . Are you losing top soil by erosion? . . . Are the crop and livestock enterprises the most profitable for your farm? . . . Are crops being sold at the time to get highest prices?

These questions about the operation of your farm should be answered satisfactorily. They are but a few of the problems that are being solved on the hundreds of farms under Doane management. Over a period of time, the increased income usually pays for the cost of management, with a nice profit in addition—and you'll be relieved of a lot of detail and worry.

Managing farms has been our business for over 35 years—the oldest and largest organization in the United States engaged in farm management and agricultural research. We apply to each property the wide knowledge gained in the operation of hundreds of farms, ranches, plantations and citrus groves.

Write for your Free "Farm Management Check Sheet," so that you may check, for your own information, the operation of your farm.

OTHER MANAGEMENT SERVICES

In addition to managing farms for absentee owners, we appraise farms for their long term earning value, and work out special management programs for operating farmers or for owners who wish to manage their own farms.

DOANE AGRICULTURAL SERVICE, INC.

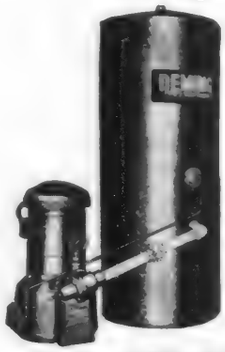
Box 346, 5142 Delmar Blvd. St. Louis 8, Mo.

Field Offices at: Ames, Ia.; Aurora, Ill.; Austin, Minn.; Carthage, Mo.; Champaign, Ill.; Denver, Colo.; Des Moines, Ia.; Dexter, Mo.; Doylestown, Pa.; Galesburg, Ill.; Jerseyville, Ill.; Lake Wales, Fla.; Mankato, Minn.; Memphis, Tenn.; Mt. Pleasant, Ia.; Oregon, Ill.; Ottumwa, Ia.; Quincy, Ill.; Sioux Falls, S. Dak.; Spencer, Ia.; Springfield, Ill.; Tipton, Ia.; Waterloo, Ia.; Webster City, Ia.; Winterset, Ia.

PLENTY OF WATER WHERE YOU NEED IT!

Are you making *full use* of the time and work-saving advantages of Running Water? Is your present pumping equipment adequate to supply all needs? Is it efficient and dependable? It's good business to farm with the help of *Running Water!*

Pump it with a DEMING!



The Deming Fig. 6700 Submersible Pump (shown at right) is designed for wells from 40 to 400 feet to lowest water level. Capacities range to 1500 gallons per hour. Entire pumping unit is completely submerged in well water. No pump house needed. Made of corrosion-resistant materials. Pump and motor are water cooled and water lubricated.

At left is shown the Deming Fig. 4963 "All Purpose" Jet Water System . . . easily convertible for shallow or deep well service. Full range of capacities up to 2450 gallons per hour. Modern features make this an outstanding value in modern water supply systems for farms.

Factual information will be sent promptly upon request.

DEMING *The Most Complete Line of Pumps for Farm and Home!*

THE DEMING COMPANY • 510 BROADWAY • SALEM, OHIO

termites to bridge over the forty-five degree angle.

Build concrete curbs four to six inches high in the basement and install your wood partitions on these. You are asking for trouble if you fur out hollow masonry basement walls. There are too many mortar joints below the grade line, many of which will permit termites to get to the furring strips. Use a good mastic or hot coal tar pitch at the juncture of the concrete basement floor and basement wall. Many contractors are not familiar with the chemistry of these products and asphalt is very often used for this purpose. Termites will drill through asphalt but coal tar pitch is a definite deterrent.

No native woods are absolutely immune to termite attack. Some, like cedar and redwood, are less susceptible to attack than pine or oak. Be more concerned about proper construction than the type of wood you use, even though it may be treated wood.

Ranch-type homes, without basements, are very susceptible to termite invasion unless very definite precautions are taken when the house is constructed. Heating pipes imbedded in the floor increase the vulnerability. The first swarms of termites in early spring usually come from sources near heat. If you now live in a ranch-type, basementless home and you did not treat the soil or fill the voids between the floor and the wall with a suitable mastic—keep your fingers crossed and hope for the best. As long as we neglect proper construction procedure, termite damage will increase in direct proportion to the increase in population.

If you discover termites in the structural part of your home or have a sudden invasion of swarmers in the spring, take a philosophical view of the situation. This attitude also helps the hypertension. Your home hasn't fallen down—and won't. Chances are, if this is a new infestation, you will have very little, if any, damage. Take your time and plan the attack. Neglect over a period of years results in the sensational destruction that one reads about in the newspapers.

Of course, if you want to run away from

your troubles, you can move to North Dakota or to the northern part of South Dakota, the only places in the United States where termites are unknown.

THE AUTHOR: While attending Miami University at Oxford, Ohio, Bob Adams read an article by a famous entomologist who said that eventually the bugs were going to take over the world. This alarmed Mr. Adams, who thought he had better get into the business of fighting them as a matter of self defense. At the same time, he reasoned, he could make a living protecting the life and property of others. After 25 years in the pest control business, he reports that he has succeeded in his first objective, but the second is still in the balance.

EARLY WEANING OF PIGS

(*Continued from page* 33)

I really mean first rate, we recommend weaning at seven days. If conditions are good but not absolutely the best, we would rather see them wean at two weeks, and if conditions are just average, I would suggest they wait and wean at five weeks."

One farm which has been experimenting with the early weaning since December of last year is the rolling 550-acre corn and hog farm near Letts, Iowa, operated by Donald and Ed Lee. The practical, hard-working Lee brothers, who are known as smart farmers in a state where standards are high, run a herd of around 120 brood sows to supply their own pig needs and a few hundred extra to sell as weaned pigs between June and September. The heart of their operation is a 40-stall, furnace-heated farrowing barn. By dividing their sow herd into three groups and by immediate rebreeding of the sow after weaning they are able to keep this building in constant use with only a day or two between groups for a thorough steam cleaning.

Two or three days before farrowing, the sows are brought into the house and installed in their pens which are divided across the front to provide a safe, warmed area for the pigs. Conspicuously absent is a farrowing crate which the Lee brothers don't like. Catron and Luther and most of the others who are working with this program feel that without the farrowing crate the system is only partly effective.

"We breed our sows so that there isn't a week's difference between the first and last litter produced by any group of forty," Donald Lee said. "If we didn't, we'd go crazy trying to keep up with sows farrowing any old time. We manage it by maintaining six closely related boars which have been raised together from birth and so don't fight each other. Then, as the pigs are weaned, we turn the sows into warm, dry, well insulated breeding pens. The sows come in heat three days after weaning and are bred. We wean at about ten days, partly to get a bigger pig to put on dry feed, and partly to insure a good conception rate when we rebreed. We are getting forty-three sows with pig out of forty-five on first breeding, which is about as good as we ever did on the old way of nursing pigs."

The pigs are left with the sow until they reach six to eight pounds, which takes about ten days; the Lees feel that five

Cobey
MODEL 150
TWO PURPOSE IMPLEMENT

A SELF-UNLOADING WAGON NOW

A SPREADER IN WINTER & SPRING

3 SIZES 150 Bushels 130 Bushels 100 Bushels

This famous COBEY Spreader plus side extensions gives you that big forage wagon you have been wanting. The chain conveyor (operated from tractor power take-off) does the hard work of unloading — saves you valuable time.

After harvest season, the beater-spreaders are easily attached to give you an all-weather spreader. It's just as efficient in mud and snow as in dry weather — TRACTOR POWER OPERATION makes it independent of unfavorable ground traction conditions. Remember, COBEY gives you DOUBLE USAGE VALUE for your money! Why take less? Check the coupon.

THE COBEY CORPORATION
Galion, Ohio

COBEY MODEL 51-A IS A SPECIAL SELF-UNLOADING WAGON

Tractor power operation of conveyor makes quick work of unloading ear corn, chopped hay, and all types of forage crops. All steel . . . heavy screened sides . . . big capacity . . . easy pulling . . . variable speed unloading.

MAIL COUPON TODAY

☐ COMBINATION SPREADER and SELF-UNLOADING WAGON
☐ PTO SELF-UNLOADING WAGON
☐ HI-SPEED CONVERTIBLE WAGON
☐ PTO DUMP WAGON
☐ WAGON GEAR and BOXES
☐ TILTING PLATFORM WAGON
☐ TWO-WHEEL TRAILERS

THE COBEY CORP. Dept. FQ- 94 Galion, Ohio
Please send me complete information on items checked
Name _____
Address _____
City _____ State _____

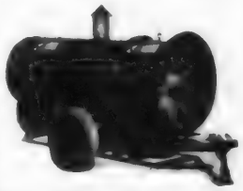
☐ SILAGE BLOWERS and FEED GRINDERS
☐ MULTI-PURPOSE HARVESTER
☐ PULVERIZERS and MULCHERS
☐ HARROWS and HOES
☐ HI-CLEARANCE WAGON and HAY RAKES

COBEY FARM EQUIPMENT FOR HAULING, TILLING AND HARVESTING

Think What You Could Do With This

KROP-KARE EQUIPMENT . . .

KROP-KARE AERTEMP DRIER



More drying air with less fuel — less power. The most efficient drier on the market. Adjustable fan-blades lets you dry all crops with one fan. Automatic controls and ignition. Extraordinary safety features. If you are thinking of crop driers, above all, get full information on this one.

KROP-CARE MOISTURE TESTER

Make your own tests for moisture in baled, loose, windrowed hay; or grain of all kinds. Requires no outside power. Take it from field-to-field, bin-to-crib. Let's you know exact condition of stored grain or hay. Avoids loss from mold and overheating. Very inexpensive to own.

STEEL GRAIN BINS

For the man who wants sure, safe storage for years to come! Built like a battleship—built to last. Heavy metal. Heavily braced. Heavy galvanizing. Carefully fabricated for easy and safe erection. 500 to 3100 bushel capacities.

KROP-SCOOP ELEVATOR

Saves your back—saves scooping. Delivers up to 800 bu. per hour. Low priced. Drives from ½ inch electric drill, motor or 2-cycle engine. Other models on wheels delivering up to 1800 bu. per hour.

STEEL CORN CRIBS

Not just ordinary wire like most cribs—but No. 5 steel. Outlasts others 2 to 1. Heavy angle and channels. No fussing or fuming. Goes together like a charm. A man's crib if there ever was one. Will still be good long after you've retired and taking it easy. That means lowest possible year-to-year storage costs! From 750 bu. to 2200 bu. capacity.

Mail coupon for the full story. No charge or obligation!

J. R. MAYNER AND COMPANY
906 Richland Trust Bldg., Mansfield, Ohio

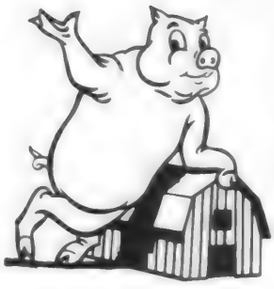
Yes, send me the information checked, and thanks.

☐ Krop-Kare Grain Elevators
☐ Krop-Kare Moisture Tester
☐ Steel Grain Bins
☐ Steel Corn Cribs
☐ Krop-Kare Aertemp Driers

Name.....
RR or City..... State.....

It's Packed With Pre-Weaning

BOOSTER-POWER!



TUXEDO'S

Sensational New Pig Starter-

BIG PIG

Brings pigs up to weaning time many lbs. heavier—actually gives 1 lb. of gain for each 1½ to 2 lbs. of feed consumed!

Contains more than DOUBLE the normal amount of Vitamins and Antibiotics used in feeding pigs! Promotes vigorous health.

In pellet form—specially sweetened—baby pigs like it—eat it like candy!

25¢ PREMIUM

The tags from each 100 lbs. of Tuxedo "Big Pig" are worth 25¢ on purchase of 100 lbs. of any Tuxedo Hog Feed. Offer expires Dec. 31, 1954.

THE FEEDERS' SILENT PARTNER

Our 73rd Year

THE EARLY & DANIEL CO.,
CINCINNATI 2, OHIO

TUXEDO FEEDS FOR LIVESTOCK AND POULTRY

RAIN BIRDS® *Set the pace for Performance*

More farmers use Rain Birds than any other sprinklers. Why? Rain Birds' simplicity of design and unexcelled performance answer today's irrigation requirements. For your protection look for the name "RAIN BIRD" on the sprinklers you buy.

Be sure the sprinkling system you get meets American Society of Agricultural Engineers standards and fits your needs exactly.

Our research and planning department is at your service. Consult us today without obligation.

Member Sprinkler Irrigation Ass'n.

NATIONAL RAIN BIRD SALES & ENGINEERING CORP.
AZUSA, CALIFORNIA

RAINY SPRINKLER SALES
609 WEST LAKE ST. PEORIA 5, ILLINOIS

pounds is the absolute minimum weight for weaning and would rather allow themselves a little margin. At six days, the pigs are given a shot for erysipelas, and dosed with a Haver-Glover reduced iron tablet to prevent anemia. Cholera serum is given at 10 days and a double cholera shot when they weigh 30 pounds; a second erysipelas shot is given when they weigh 45 pounds.

When the pigs reach six to eight pounds the sow is turned out to pasture, a dry-feed hopper is put in with the pigs, and they are on their own. "Normally it would take around twenty-four hours for the pigs to start eating the pre-starter," chunky Ed Lee said, "but we've whipped that by putting in an eater pig to teach them how to eat. We pick a runt pig from a previously weaned batch; he's a hound for feed, never having had enough, and shows them how it's done. The rest of them nose around the eater pig, get some of the sugar feed in their mouths, and within a few hours are gobbling it up.

"We feed about eight pounds of pre-starter meal to the pigs and then change to starter pellets. We know that we're weaning heavier and feeding more pre-starter meal than is absolutely necessary, but we'd rather play it safe. One thing, though. The pre-starter and the starter feeds are pretty high in protein; if we see any of the pigs scouring, we put them onto a lower protein feed right off. I must say, though, that we've had very little trouble with scouring since we started this new system."

The starter pellets, which cost around five dollars a hundred less than the pre-starter feed, are fed from the time the pig gets off pre-starter at around 8 pounds until the end of the pig's fifth week when he weighs around 25 pounds. From then until 8 weeks, the pig is on growing ration which comes at around two dollars less than the starter feed. At 8 weeks the pigs will weigh anywhere from 50 to 60 pounds and are ready to be thrown together in groups of 100 into the feed lot. Forty pounds is considered the minimum weight for the feed lot.

Almost as important as the feed for early weaned pigs is the environment that is provided. They must be kept warm; they must be kept dry; and they must be kept free from drafts. Catron manages this at the experimental farm with radiant heat from that part of the floor near the feed hopper and with heat lights. The Lee brothers keep the air temperature of the farrowing barn at 70 degrees for the first week of the pig's life with a hot air furnace, and use lights near the feed hopper to keep the temperature there at 80 degrees at pig level. Both use solid walls on the pens to prevent drafts. Clean, fresh water is, of course, a must for these young animals which have been getting all of their feed as a liquid; automatic water fountains are the best method of providing water, though hand-filled fountains will serve well if they are kept clean. Both farmers and nutritionists claim that it is impossible

to over-emphasize the need for adequate, clean water.

"When you turn the pigs out into the feed lot," Donald Lee said, "you should give them a dry, draft-free place to bed down in, but you don't have to provide heat. We turn them out in the coldest winter weather with nothing but a three-sided shelter to keep them from drafts and have had very good results. The sows *must* be given a good sleeping place with plenty of bedding when you turn them out in the winter or you'll lose their udders sure as you're standing there. You just can't take a sow with an udder full of milk and let her stretch out on the frozen ground—her udder will freeze—but give her a dry place with plenty of straw to insulate her and she'll dry up with no trouble at all."

In emphasizing this important aspect of sow management, Lee recommends that, if possible, she be placed on a slab of vermiculite-concrete, which acts as an insulation, with plenty of good dry straw on top of that. You must protect that udder, he points out, if she is to be rebred.

"We are fast weaning the second litters from our sow herd now so we've had a pretty good chance to see how it will work out. We find that taking the pigs from the sows early increases the number of pigs saved, gives us more litters from a sow, and gives us greater flexibility in handling the sows. Right now, for instance, the hog market is high, so we are going to reduce our sow inventory. Here is a sow that we normally would have sold last winter, but held onto for another litter and a higher market. The difference in what we would have got for her then and what we can get for her now will more than pay for her gestation feed. Here's another animal, a first litter gilt. I don't think we would want to hold her for more than two litters, but if we did that we'd be selling her around November when the market is predictably low; so we'll just hold her for a few weeks to make a nice smooth butcher sow out of her and sell her while prices are up. Another important thing, of course, is that these sows don't lose any fifty or a hundred pounds during nursing. We tried this out with five control sows which were allowed to nurse their pigs right through. The thirty-five sows which were taken from the pigs early averaged 500 pounds; the five control sows averaged 400 pounds. And the funny thing is that the five control sows ate about twice as much feed as the others during the nursing period."

A number of farmers are turning to early weaning to beat disease and early losses of pigs. The pay-off comes when you can say, as Ed Lee did, "When I gave the last batch of pigs their first erysipelas shots I counted 360; when I gave them their last cholera shots I still counted 360—and that's about our average number of pigs saved, nine."

PIG-O-MAT

STARTS PIGS ON SOLID FEED!

Here's a sure way to save feed, pigs, time, money. Over 7 bushels of feed are automatically furnished for up to 32 pigs. It's self-contained . . . makes possible fast, healthy growth. Farm tested and proved. Keeps feed dry. Easy to fill and move. No crowding . . . six separate feeding spaces.

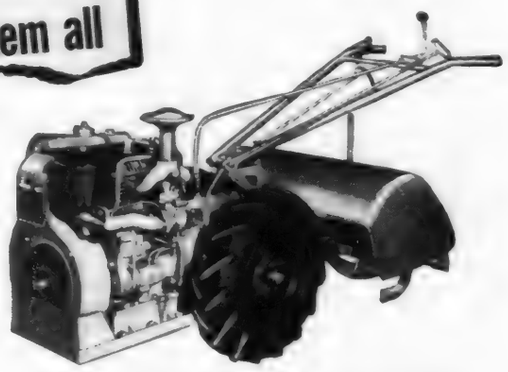
FT-82 FOUNT

Double-jacket assures proper water temperature . . . keeps it available the year 'round! Simple to fill with 82 gallons. Has self-closing drinking lids and individual clean out pans. Easily lagged to platform.

WRITE TODAY for free folders FQ.

FARMER FEEDER CO., INC.
Cambridge City, Indiana

before you buy any rotary tiller . . . see how
ARIENS *heavy duty* TILLER
with "*Paring Knife*" tines out performs them all



• "Paring knife" tines now available on all heavy duty Ariens Tiller models: C-1 with 7 h.p. engine; B-1 with 9 h.p. engine; D-1 with 12.5 h.p. engine.

Arien's new curved, swept-back tines are non-winding, non-breakable. They assure better ground preparation . . . better cultivation . . . in any soil, under any operating conditions! Variable gears and engine speeds provide variable degrees of pulverization. 7, 9 or 12.5 h.p. Wisconsin engine. Twin-Disc clutch. 2 forward speeds and one reverse. Tillage: 2" to 10" deep; 22" to 28" wide. Attachments: All-position mower, bulldozer blade, furrower, row marker and rear transport wheel. Write for details.

Rear view of Ariens heavy duty Tiller.

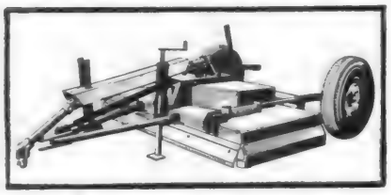
Ariens

ARIENS COMPANY
117 Calumet Street
Brillion, Wisconsin

WOOD'S MULTI-PURPOSE ROTARY CUTTER

- Mows, Shreds, Clips, Mulches
- Faster than Sickle Bar
- Does the Job at Far Less Cost
- 9 Models From 42" to 114" Swath

Here's a four chore machine for fast, thorough stalk shredding, cover crop mulching, weed and brush cutting, pasture mowing and leaf mulching. Stalks are instantly reduced to chaff or fine mulch for cleaner plowing. Crop pests are destroyed by complete coverage. One trip across the field with a Wood's Rotary Cutter mulches weeds, clovers, straws, and stubbles to make the plowing job that follows an easy matter. Even



With the parking jack shown on the Wood's machine above, one man can attach cutter to the tractor and make any necessary adjustments without assistance.

•

badly tangled potato vines are shredded for easy digging. Brush, weeds and sage as thick as your wrist—as high as your tractor—are shattered to bits. Orchard and vineyard prunings—or cover crops—are thoroughly shredded. When clipping pastures you get a fine, uniform cut. Cuttings are shredded and drop down between standing plants more readily. Smothering of young grass is eliminated, cuttings are more readily absorbed into the soil and a moisture conserving mulch is provided which helps prevent erosion.

Wood's Rotary Cutters are available in either hydraulic lift or trailer models with 1, 2 or 3 blades. Blades overlap on 2 and 3 blade models for cleaner cutting. Blades are protected by heavy 3/16-inch boiler plate guards. Wood's machines are adjustable from ground level to 14 inches in height. Exclusive triple "B" V-belt absorbs shock loads even while transmitting tremendous power, thus protecting both machine and tractor. Universal Joint Drive with 50 H. P. capacity handles the power of the largest farm tractors. You have a choice of 15-inch drop-center wheels or 8-inch wheels with non-pneumatic rubber tires.

Write, today, for your copy of a free folder and the name of your nearest dealer.

•

WOOD'S

ROTARY CUTTERS and MOWERS

9 Models • 42" to 114" Swaths • Trailer or Mounted

13409 SO. 4TH STREET • OREGON, ILLINOIS

ROTARY CUTTERS

(*Continued from page* 44)

tractors, the wheels on the cutter can be eliminated and skids used for setting the height of the cut, or one swivel wheel may be used at the rear of the canopy, as a height adjustment.

The shielding around the sides of the cutter can vary in design, but there must be protection so that a foot or hand can't be put into the path of the blade. The more completely shielded the cutter is, the better the mulching job, too.

This is the basic cutter design. From this have been developed models with two blades and big three-bladed models. There are some models available with their own gasoline engine power plant mounted on top of the canopy; this engine is used to drive the cutter. The power-driven cutters have the advantage of being free of the power take-off of a tractor. They can be pulled behind a truck or Jeep, leaving the tractor for other work. Another variation is available on some models, which will allow several blades to be mounted on the same spindle. In stalks this gives a shredding effect at several heights.

The cutting height can be adjusted from flush with the ground up to 12 or 14 inches. The cutter blade should always be high enough off the ground to clear stones and large stumps. The same wheels which adjust the height of the cut can be used to transport the cutter from field to field, and on the highway they can be moved as fast as the tractor operator wants to drive. Badly nicked blades can be filled in by using a welding torch. While balance on the blades is not critical, it is a good idea in replacing blades to buy a set; they cost $10 to $15 for a single cutter model. Blades rarely need sharpening, and even with heavy use will last for a whole year of mowing. They can be sharpened by removing them from the machine and filing or grinding the blade edge to its original bevel. There are grease points that need filling before every day's operation. Other than greasing and the replacement of shear bolts after hitting a stump, there is very little care needed.

The amount of acreage that can be covered in a day will vary, of course, with the size of the cutter and the kind of brush or pasture that is being worked over. In moderate brush, it is no trick to shred 15 or 20 acres with a single 60-inch cutter.

One thing the rotary cutter won't do is cut hay. The mulching effect is so complete that the hay crop is reduced to ribbons. For topping pastures to keep weeds from seeding, though, it can be as gentle as a cat washing her kittens. Since it is no trick to do this kind of light work in third or fourth gear, it is easy enough to cover 40 or 50 acres of pasture in a day.

In Wisconsin where they had the rain

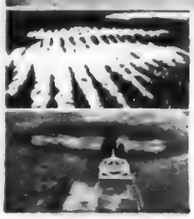
There's **GOLD** in Land Smoothing

Write for Useful Booklet on the

Eversman All Purpose Tillage Tool and LAND SMOOTHER

Make plans now to smooth fields, fill pot holes, improve surface drainage this fall when preparing alfalfa or wheat ground or after bean and corn harvest. Eversman smoothed fields free of pockets, dead furrows and back furrows greatly increase crop yields. Reduce labor and water costs on irrigated land. With springtooth attachment the Eversman is a complete TILLAGE TOOL, which breaks clods, mulches the soil, makes a firm, well packed seedbed which holds moisture, makes planting uniform, cultivating easier and harvesting faster.

Six all-purpose models for all standard farm tractors...for AUTOMATIC SOIL SMOOTHING, DIRT MOVING, SEEDBED PREPARATION!



Eliminate Pot Holes

With an Eversman and your own tractor it is easy and inexpensive to eliminate pot holes, fill gullies, straighten out terraces on hillsides, build farm over drainage ditches and grass waterways. Write for useful FREE booklet.

Tried and Proven in Rain Fall and Irrigation Areas Throughout the Nation

EVERSMAN MFG. CO.

Dept. L-117 • Curtis & Fifth • Denver 4, Colo.

MONEY MAKERS for 63 YEARS!

You buy chicks from Parks' proven flocks without risk. Your Grandad, county agent, and leading poultry journals recommend them. Be sure you get our new catalog about

WORLD'S OLDEST STRAIN

PARKS' BARRED ROCKS

Tells how we produce these big rugged mountain grown birds. **Also get the facts about two NEW and exclusive crosses** out of our Barred Rock Hens. Remember our 63 years of specialized breeding **can help YOU to make more money** from eggs *and* meat. Write today!

JOE PARKS & SONS
ALTOONA, PA.

SAVE $100

COSTS AS LITTLE AS **$66**

LIME • SEED • FERTILIZER
BROADCASTER

Sizes: 3 to 14 ft.

Sturdy, low cost Broadcaster saves real money. Special hitch. No-clog agitator. Gives exact spreading—50 lbs. to 8,000 lbs. per acre. Iron clad guarantee.

12,000 WORKING IN 28 STATES

SEND FOR FREE BOOKLET

MOORE EQUIPMENT CO.
SWEDESBORO 46, N. J.

PUMP WATER *FAST!*

DRAIN WASH TUBS, CELLARS, CISTERNS. Famous #7 pumps 2800 GPH. 420 GPH at 75' high or 1600 GPH from 25' well. Sturdy, rustproof Alloy Metal Six Blade impeller. Uses any ⅙ to ⅓ H.P. Motor. Will not leak or clog. Fits any garden hose. Immediate money back guarantee. Send Check, Money Order, or C.O.D. . . . . $8.95 mos

IRRIGATE, FILL TANKS, DRAW WELL WATER. Heavy duty #8 Pumps 7000 GPH. 1000 GPH 75' high — 3000 GPH from 25' well. Rust proof Alloy Metal 8 blade impeller. 1" inlet — 1" outlet. Standard Pipe Threaded. Money back guarantee. Send check, Money Order, or C.O.D. . . . . $11.95 mos

Free Catalogue — Gear Pumps — Deep and Shallow Well Pumps

MOORE MANUFACTURING CO.
SWEDESBORO 56A NEW JERSEY

that the rest of the country needed this spring, farmers found a new use for their rotary cutters. The heavy first-cutting of hay got rained on, for most people. And that posed a question, "What to do with it?" Where it had not been raked some farmers went ahead and baled it for bedding. The rotary cutter was just the thing for hay that had been raked into windrows, though. By running it down the middle of the windrow, the hay was reduced to a mulch that was well scattered over the area.

Cutter in the Orchard

Fruit growers have several uses for rotary cutters. This is James B. Lane of near Xenia, Ohio, talking to several other orchard men: "In years past, we have hauled our prunings from the orchard on truck, wagon, stone boat, and a scrap of wire fence, which is the easiest to load and unload. But all these were manual operations. And brush disposal was always the most abominable chore in orcharding. Then for several years we used the tractor buck rake, with power lift, to take up the brush from windrows between the tree rows and dump it on the fire. This innovation brought a bit of pleasure to a wearisome task, for now great quantities of brush were more speedily and more easily eliminated.

"Elimination, however, never was the answer we really wanted. The burning of all that brush was the wasting of a great deal of plant nutrients, water, and time used in growing it. A huge tonnage of mulch material went up in smoke, while we hauled in, at great expense, many tons of other fibrous material for use as mulch.

"Last year, we purchased, in partnership with the Groby Fruit Farm of Dayton, a Wood's Rotary Cutter. This piece of equipment consists of two pairs of propeller-like blades that revolve horizontally, at a speed three times that of the power-take-off that drives them, under a heavy metal canopy. These blades are triple V-belt driven. One shaft is slightly to the rear and far enough to the side of the other that the blades barely miss each other, and cover all the area under the canopy.

"All our pruning is done with shears. Cuts large enough to require the use of a saw are made by the brush pitcher-outer who drops the stubs at the base of the tree. As the tractor is driven over the scattered prunings, the front of the attached cutter is held high by the hydraulic lift, while the back side is supported by two skids which barely keep the blades and canopy from striking the ground. The blades should never be permitted to strike a stationary stone, and, if they strike a loose one, you don't want to be anywhere about, except in the driver's seat. For, with the throttle wide open at low gear, whatever the blades strike, at that speed and power, is shattered to smithereens. The belts can slip,

Easy to connect pipe. Push ends together and they lock. Make water tight seal.

Improve quality and yield any year. Water an acre or a square mile quickly and easily with OK Champion Sprinkler Irrigation—the "Quality and Pioneer Line." Quick connecting, water-tight couplings. Couple and uncouple pipe from standing position—no stooping. Entire system quickly repays cost. Makes extra profit for years.

Send for FREE Circular—Champion Corporation, 4791 Sheffield Ave., Hammond, Ind.

OK CHAMPION *Irrigation Systems* Layout Plans FREE

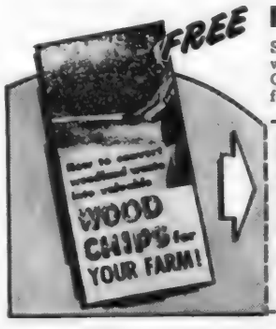
This FITCHBURG CHIPPER converts woodland waste into valuable wood chips

Orchardists find it pays to chip prunings and thinnings, instead of hauling them away to burn, and leaving chips as mulch around the base of the trees.

Wood Chips for the Land, USDA Leaflet states: "Savings of $180 per acre in 5 years were noticed by an apple orchardist who mulched with chips instead of straw."

Wood chips make an excellent, low-cost poultry litter ideal for shallow, or built-up manure pack. Chips are highly absorptive, reduce odors, are dust-free, and "scratchable." The low cost is further reduced, because manured poultry litter high in nitrogen, makes a splendid soil amendment.

Wood Chips—a Good Material for Livestock Bedding, published by Purdue University, says: "Shredded wood chips used in bedding tests in the Purdue dairy barn stayed in place better than straw, ground corn cobs or shavings. Next to straw, chips were found to be the cheapest type of bedding."



FOLDER gives you the facts!

Suggestions for using low-cost wood chips on your farm—ways to earn extra money, technical data for the Fitchburg Chipper, model types, specifications—it's all in this valuable folder. Send for your copy today.

FITCHBURG ENGINEERING CORPORATION
Dept. 2, Fitchburg, Massachusetts
Send me the new Fitchburg Chipper Folder. I am interested in Wood Chips for:
Please Check ☐ Soil enrichment ☐ Garden or berry mulch ☐ Fruit tree mulch ☐ Stable bedding ☐ Farm roads, field lanes ☐ Poultry litter
Name_____
Address_____
Town_____ State_____

mows, cuts, clears } pastures — stalks — vines and heavy undergrowth

LILLISTON **ROTO-SPEED** ROTARY CUTTER

That's not all. The Roto-Speed's big, powerful rotary blades create a powerful suction and shredding action that reduces cuttings to a fine mulch. It destroys the hatching places of harmful insects, conditions your soil, helps nourish healthy new growth. See it in action—your dealer will be glad to let you try it out with no obligation.

7-SIX OR THE 5-TWO

- FAST, EFFICIENT, practically maintenance-free. One man can attach it in minutes.
- ENGINEERED by the manufacturers of the *Lilliston Peanut Combine*, the machine that revolutionized the peanut industry.

For free literature, and the name of the dealer nearest you, write

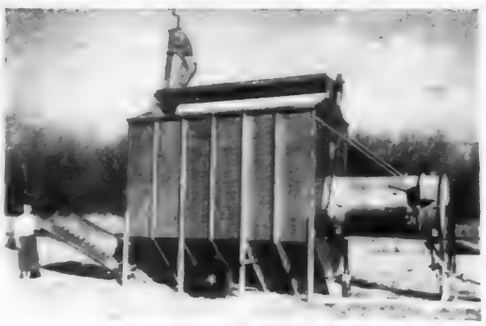
LILLISTON IMPLEMENT COMPANY • ALBANY, GEORGIA

Farmer Makes $2,250 MORE From Corn with Help of **BEHLEN** COMBINATION **DRYING TOWER & HEAT BLOWER**

Behlen COMBINATION DRYING TOWER and HEAT BLOWER

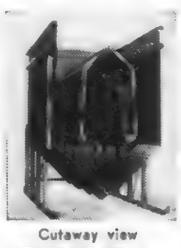
"Our dryer enabled us to sell 9,000 bu. of new corn at the old price . . . 25c a bu. more than we would have received 2 weeks later . . . Our field losses were cut in half by being able to start 3 weeks earlier."

Moffett Farms, Modesto, Illinois



1954 Model with Folding Hopper

- FAST DRYING • EFFICIENT DIRECT HEAT
- "FULL CYCLE" GRAIN HANDLING
- COMPLETELY PORTABLE



Cutaway view

Only Behlen dries small grains with such **speed** and **economy!** Reduces moisture content of 350 bu. from 25% to 15% in less than 1½ hours with farm tractor drive. Fastest drying rate ever! Owners report fuel cost of less than 1½c per bushel! **Galvanized Steel Tower** fills through top; grain pours around sides of perforated inner air chamber! Heat blower generates up to 2,000,000 B.T.U.'s per hour . . . delivers direct heat with **no stack loss!**

Models for Propane, natural gas, fuel oil. Portable unit has **folding elevator, rubber-tired wheels.** Write today for full information.

BEHLEN — THE BIG NAME IN CROP DRYING, CROP STORAGE, CROP CONDITIONING

Behlen All-Metal Rectangular Corn Crib

Made of ¼" diameter steel bars. Mesh corrugated for extra strength. Completely prefabricated. Comes in 4-ft. sections.

Behlen All-Metal Round Corn Crib

Same heavy bar mesh. Rust resistant. 3 sizes: 1022 bu., 1500 bu., and 1930 bu.

Behlen All-Steel Ventilators and Tunnels

Heavy steel bar mesh tubing helps dry corn no matter how you store it. Millions of feet in use.

BEHLEN MANUFACTURING CO., Dept. FQ, Columbus, Nebr.

that's a safety feature, and a shear bolt will probably break. Of course, some straight sticks will lie flat on the ground and never be touched. Neither will they bother any other orchard operation.

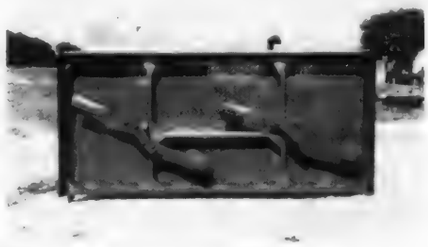
"Now we have disposal. We have joy. And we have tons of mulch like nature does it on the forest floor. We have made no comparisons to show the time saved by the new method. The scrap of fence went to the scrap pile. The buck rake stands in the shed.

"We also used this machine for orchard mowing, except for the swath under the trees which must be done with the side mounted cutter-bar mower. When the bluegrass pasture came into bloom, we leveled the mower at five inches high, using a single wheel instead of the two skids, and did as pretty a job of pasture mowing as you want to see."

Clearing Brushy Land

In Iowa, E. P. Sylwester, the Extension Plant Pathologist and Botanist of Iowa State College, has worked out a two-year plan for putting thousands of acres of land in the state in pastures. He says:

"This machine is the first one that I have ever seen that seems to have promise for revolutionizing brush control. Either it can be used repeatedly or as the first operation, followed then by repeated mowing, or better still perhaps spraying of the regrowth. Here is a machine that eliminates the backbreaking, tedious hand labor, gives the grasses a chance immediately after the brush is off, is rugged and I believe can be used on any type of area where you can drive a tractor."



The under side of a two-bladed cutter.

There are certain construction details that anyone buying a rotary cutter should look into before signing on the dotted line.

(1) Whether you think so or not at the time you buy a cutter, you, or someone that works for you, will be cutting trees and getting into rocks and stumps. So, be sure that the cutter is built to take it. Heavy-duty castings and heavy gauge material in the canopy and guard plates are essential. Where castings are used, as in the gear box, see that these are made from malleable iron.

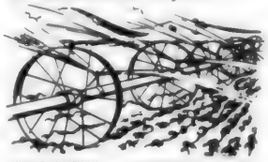
(2) The gear box should be checked to see that the horsepower rating allows a safety factor. If you ever expect to use a 40 horsepower tractor on a cutter, be sure that your gear box is rated at 50 horsepower—60 is better. Forged gears that have been heat-treated are the best for

DO YOU KNOW THAT...

Fall Irrigation Insures BUMPER Crops!

There are REAL REASONS why SHUR-RANE® is better!

- the most soundly engineered system in the world —*specially designed and installed for your own soil, crops, land slope, weather, for your own water supply and labor conditions.*
- backed by a national organization that is technically and financially able to *guaranty* satisfactory performance.
- a SHUR-RANE system will never be an orphan – you can always be sure of service, parts and additions.
- a large staff of field engineers backs up your well-trained SHUR-RANE dealer in solving your individual irrigation problems.
- continuous improvements enable you to keep your SHUR-RANE system up-to-the-minute at all times and at lowest cost to you.



And NOW...SHUR-ROLL (wheel-type) saves up to 80% of your labor... the wheels carry the load. One man moves ⅛ to ¼ mile of line in a few minutes!

SHUR-RANE®

PORTABLE SPRINKLER SYSTEMS

For FALL Irrigation!

DO YOU KNOW THAT soil is a reservoir in which to store water?

DO YOU KNOW THAT water applied in the Fall remains available for crops until used?

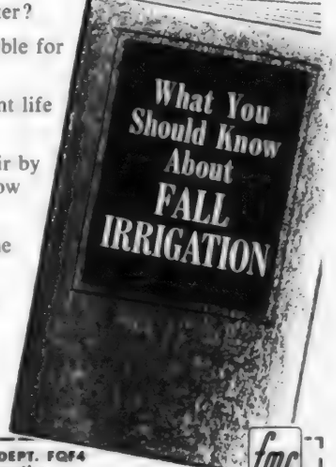
DO YOU KNOW THAT with minor evaporation losses, only plant life can drain this reservoir?

DO YOU KNOW THAT drought... depletion of the soil reservoir by this year's crops... and insufficient Winter and early Spring snow and rain could mean crop failure next year?

DO YOU KNOW THAT you can assure your crop by filling the soil reservoir with SHUR-RANE irrigation in the Fall?

DO YOU KNOW THAT you can invest your "slack time" profitably in Fall irrigation?

The facts prove that you do not have to gamble with nature. Investigate the value of Fall Irrigation!



Partial view of the complete up-to-date engineering department maintained by SHUR-RANE.

Send for FREE booklet today

SHUR-RANE IRRIGATION SYSTEMS, DEPT. FQF4
Food Machinery and Chemical Corporation
P.O. Box 145 • San Jose 1, California
If in one of the 14 Southeastern States, send to Florida Div., Lakeland, Fla.

Gentlemen: Please send me my free copy of "What You Should Know About Fall Irrigation!"

NAME_____

ADDRESS_____

CITY_____ STATE_____

the gear box and they should run in oil.

(3) The machine should be equipped with safety features that protect it against damage when it hits rocks or stumps. Probably the best of the shock absorbers are the "V" belt drives that are used on many of the best machines. If the cutter is a model that has several cutter blades, these belts are almost a necessity. The belts are desirable on the single blade cutter. Shear bolts and slip clutches are safety features that can save many a breakdown. Swinging blades will absorb the shock of striking heavy objects and are used in some cutters. Satisfy yourself that the safety features are adequate by using a machine on heavy growth on your own farm before you buy it.

(4) Some machines have little or nothing in the way of sideguards. This saves steel and weight and it does make the machine easier to pull. Covers on the side and back of the machine are not a waste of money. They protect bystanders from rocks and sticks being thrown out at them and they keep the material under the hood until it is reduced to a mulch. The most obvious need for guards is to keep hands and feet away from the blade.

(5) Machines that mount on the three-point hydraulic system type of tractor should be built so that the standard type of sway braces can be fastened on to them and connected to the tractor frame. And it might be well to add that the use of the rotary cutter is greatly extended if the tractor has a live-power take off. This will allow the cutter blade to be whirled without shifting into neutral, even though the machine is not moving forward.

Who Makes Them

Among the makers of rotary cutters are:
Auto Specialties Mfg. Co., Saint Joseph, Michigan.
E. L. Caldwell & Sons, Corpus Christi, Texas.
Danuser Machine Works, Tulsa, Okla.
John Deere, Moline, Illinois.
Dodgen and Co., Fort Dodge, Iowa.
Ford Motor Co., Tractor and Implement Div., Birmingham, Mich.
Harrison Foundry, Haharia, Florida.
Laurence Bros., Inc., Selma, Ala.
Lilliston Implement Co., Albany, Ga.
The Perry Co., Waco, Texas.
Servis Equipment Co., Dallas, Texas.
Sunflower Industries, Inc., Olathe, Kans.
Wood Bros. Mfg. Co., Oregon, Illinois.

The Farm Book Store

The Editors of the Farm Quarterly, after a careful selection of current agricultural books, recommend the following to our readers.

SOIL AND CROPS

Developing Farm Woodlands—*by J. F. Preston* $4.50
A well managed tree crop will pay off in many ways.

The Pasture Book—*by W. R. Thompson* $3.50
Revised edition, the 8th since 1949, of this information-packed book.

Soil Conservation Districts in Action—*by W. R. Parks* $3.50
How the district and the members work to stop erosion.

Grasses and Grassland Farming—*by Hi W. Staten* $5.00
One of the best books on practical grass farming.

Production of Field Crops—*by Hutcheson, Wolf & Kipps* $6.50
A new edition makes this the latest work on American field crops.

Forages—*edited by Hughes, Heath & Metcalfe* $6.75
52 experts produce a book that covers grass farming for the nation.

Colorstrip Plant Testkit $4.00
A compact, accurate tissue testing kit that can be carried in the pocket. Tells whether your crops are getting enough nitrogen, potassium and phosphorus to make good growth and produce high yields. Complete instructions come with the kit.

Soils and Fertilizers—*by Firman E. Bear* $6.00
An understandable book on the complex subject of fertility.

Hunger Signs In Crops—*A Symposium* $4.50
How to diagnose fertility needs from the plants themselves.

Irrigated Soils (2nd ed.)—*by Thorne and Peterson* $6.50
The practice of irrigation and the management of irrigated soils.

Complete Herb Grower's Kit—*by Rosella Mathieu* $3.50
Growing, blending and marketing herbs; includes seeds and samples.

LIVESTOCK

Principles of Milk Production—*by W. B. Nevens* $5.50
A practical book on breeding, feeding, and managing dairy cattle.

Restraint of Animals—*by J. R. Leahy & P. Barrow* $3.75
Line drawings and text tell how to hold animal for treatment.

Animal Breeding (5th ed.)—*by L. M. Winters* $5.75
An excellent book on genetics for the farmer.

The Hog Annual—*by the editors of Farm Quarterly* $5.00
The latest articles and breeders' lists available to date.

A Veterinary Handbook for Cattlemen—*by J. W. Bailey* $5.00
For that emergency when you can't reach the veterinarian.

Raising Swine—*by G. P. Devoe and J. L. Krider* $4.75
A practical new book on breeding, feeding, and marketing hogs.

The Livestock Book—*by W. R. Thompson et al* $3.50
This is the sequel to the best selling *Pasture Book*, It's a good one.

Feeds and Feeding (21st ed.)—*by F. B. Morrison* $7.00
The authoritative book on livestock and poultry feeding.

Dairy Science (2nd ed.)—*by W. E. Petersen* $6.50
A new edition of one of the best and most complete books on dairying.

Beef Cattle (4th ed.)—*by Roscoe R. Snapp* $6.50
A carefully revised edition of this excellent book on beef production.

Successful Poultry Management—*by M. A. Jull* $5.00
The second edition of this practical book on poultry.

FARM MANAGEMENT

General Ecology—*by A. M. Woodbury* $6.00
A study of the relationship of animals and plants to environment.

Old Orchard Farm—*by Hugh Orchard* $2.50
One of the pleasantest bits of nostalgia we've read.

Law and The Farmer—*by Jacob H. Bauscher* $4.95
Farm ownership, inheritance, and legal problems of the farm.

The Business of Farming—*by DeGraff and Haystead* $3.00
A sound book on the problems of farm management.

Farm Records and Accounts—*by J. N Efferson* $4.00
A practical book on keeping and using farm records.

A Practical Guide for the Beginning Farmer—*by Herbert Jacobs* $3.00
A book to give you an intelligent start in farming.

The Farmer's Handbook—*by John M. White* $4.95
Easy reference book on crops, livestock, and farm problems.

Shopwork on the Farm—*by M. M. Jones* $5.00
An excellent reference and how-to-do-it book for the shop.

THE FARM BOOK STORE
c/o "The Farm Quarterly" **V**
22 E. 12th Street
Cincinnati 10, Ohio

I enclose (check, money order or cash) for the following books. Please send them to me immediately.

_____ _____
(Title of book) (Price)

_____ _____
(Title of book) (Price)

and enter my subscription to "Farm Quarterly"

☐ **1 Year $2.00** ☐ **2 Years $3.50** ☐ **3 Years $5.00**

Name _____

R.R. or Street _____

City _____ State _____

Your order will be sent to you postpaid. *(Buyers living in Ohio should add 3% to price for sales tax. All prices subject to change.)*

FARM BOOKS

(*Continued from page* 22)

College Press, said of the book. We took him up on it and opened to page 33 and started reading, "It was the dead of winter so the two started for home in a great bobsled. . . . As they rode along Grandpa raised his hand and proudly pointed to a piece of land that he once had owned. Suddenly and without warning he exclaimed, 'I am dying.' Kemery stopped the horses and tried to hold Grandpa in the seat, but he was too heavy and crumpled into the bottom of the wagon box. Kemery stopped at the next house but Grandpa was dead. He had come to die and be buried with his beloved Beckie in the Pleasant Grove lot." Townsend won his bet.

After reading all of the book, we realize that Townsend was playing a sure thing. There isn't a dull page in it.

GROUND COVER

(*Continued from page* 66)

In every region, there's a sizeable list of winter seedings to choose from. Cover crops, green manure crops, nurse crops, winter catch crops—call them what you will, they differ only in purpose. They all protect bare soil from hammering rain, from washing and leaching. They add humus and hold moisture and plant food. Turn under a cover crop in spring and you've used it as green manure. Cut it for hay before re-plowing and you have made it a catch crop. Or sow it with companion meadow seedings and the cover crop becomes a nurse crop, and perhaps a cash grain crop as well.

Your purpose determines the requirements of a good cover crop:

1. Quick growth. You want something that will hair over the ground rapidly to control erosion.

2. Inexpensive seed and minimum soil preparation, with ease of seeding.

3. Heavy vegetation to turn under as green manure and to improve tilth, or to harvest as hay, silage or pasture. Or, if to be used as a nurse crop for grasses and clovers, you'll probably want a heavy yielding winter grain, with a minimum straw competition for the grass seedlings.

4. Heavy root system to hold soil, moisture, and soluble plant food. Deep roots to bring up mineral nutrients from the subsoil.

5. Hardiness, including resistance to severe weather, to damage from insects and diseases.

6. A legume, if possible in your area, to gather nitrogen, if that advantage over grasses and grains is not offset by disadvantages of the legume.

Let's see how the main crops used for cover line up. Most of them qualify as comparatively low in cost, and seed is usually plentiful. Not all of them have varieties adapted to all parts of the country. You have to cut down the list according to your weather and soil conditions along with your major purpose in growing the crop.

Winter cereals are useful as cover crops anywhere that the ground is not kept frozen all winter, which in itself would retard erosion and loss of nutrients. Grain crops are seldom sown for cover alone. Other reasons determine their choice. Considering usual seeding rates, there is no great difference in seed costs among these grains. Whenever a small grain can be fall sown, it yields better than if spring sown, though there are fall and spring varieties of all cereals. Rye stands way out as the most winter hardy, then comes wheat, then barley, finally oats. Rye has general preference for green manuring or grazing; it makes lush late winter growth, permitting early plowing or pasturing. Cattle will desert wheat and barley fields if rye grazing is available, but rye imparts flavor to milk. Young small grain pasture runs over 30 per cent protein—a cheap source of good feed.

As a nurse crop for meadow seedings, wheat or barley give less seedling competition. The main purpose of a nurse crop is to hold down weed competition for young grasses: if the nurse crop itself offers excessive competition, its purpose is defeated. For

THIS IS THE ~~YEAR~~ TIME TO BUY -SIOUX-
The Most Wanted
CORN CRIB!

ACTUAL SIZE OF -SIOUX- No. 5 WIRE

ONE OF 54 FARM-TESTED -SIOUX- RODUCTS

1 Strongest... Because of heavy No. 5 wire, extra strong angles, and improved all-steel roof.

2 Easiest To Assemble...

3 Only Crib With AIR-DRI SYSTEM

STORAGE SPACE IS CRITICALLY SHORT AGAIN!

• Truly, this is the year and now is the time to buy -SIOUX- Corn Cribs! Every year, the demand for -SIOUX- Steel storage far exceeds the supply, because it is the most wanted storage. You must place your order now for -SIOUX- storage or take less wanted storage later on.

Don't expect the government to store your crop. This year you'll have the worst storage squeeze in 5 years, and you must provide your own on-the-farm storage. -SIOUX- Corn Cribs and -SIOUX- Grain Bins qualify for 60-month TAX WRITE-OFF of cost from income taxes and also grain storage facilities loans, crop loans, and storage payments. With -SIOUX- storage you can hold your crop for highest prices, pay for your storage in a few years with extra income, profit from government payments for on-the-farm storage, and buy your livestock feed at low prices from neighbors who have inadequate storage.

Buying Storage Is Like Buying Butter!

As a farmer, you know that a pound of butter looks very much like cheaper substitute products. But discriminating people are willing to pay more for butter's naturally better flavor, natural color and vitamins. There's a big difference in storage units, too! Only -SIOUX- Corn Cribs have patented AIR-DRI systems that permit Nature to dry your corn IN THE CRIB. Only -SIOUX- Corn Cribs have heavier No. 5 wire *electronically welded* by an exclusive process to extra strong angles —the only sure way to get the extra strength of heavier wire and heavier framework. Like butter, -SIOUX- Corn Cribs cost a little more, but are worth a LOT more!

ONLY -SIOUX- GRAIN BINS HAVE 6-PLY RIB CONSTRUCTION

• This exclusive construction feature makes -SIOUX- Steel grain bins tighter, stronger, and easier to erect with fewer bolts.

THE SIOUX STEEL CO. MANUFACTURERS OF -SIOUX- STEEL PRODUCTS REG. U.S. PAT. OFF. SIOUX FALLS, S. D.

For Prompt Delivery See Your Local Dealer or Write

THE SIOUX STEEL COMPANY
Dept. FQ49, Sioux Falls, S. D.
For Complete Information

cash crops to be combined. wheat usually yields best and brings a higher price per bushel. Oats, usually in the neighborhood of half the price of wheat, must produce double the yield to equal wheat in profit. All the small grains except rye make hay of a quality similar to that of timothy.

Wheat: Sown after Hessian fly free date, which varies locally, means late planting, only moderate winter growth and seldom more than a week of pasturing before it joints. Tramples easily and is often pulled up by stock. Primarily a grain crop, though if not seeded too heavily it is excellent as a nurse crop for grass and clover.

Barley: Likes cool weather, but makes good growth in hot climates if humid. Preferred on overflow lands as green manure and to prevent washing, but needs drainage and can't stand poor soil. Shallow rooted, so easily damaged by heaving.

Oats: Require subsoil that holds moisture, but poorly drained and poor sandy soils are out. Cool weather needed: no luck with hot, dry days, so oats can't be sown early in a dry fall, yet they are the least winter hardy of all the cereals. Oats are only moderately well-liked for green manuring or pasturing and as pure cover. Though oats shade out grass seedlings more than other grains, oats are widely used for grain, and are frequently fed as hay, sheaf oats, or silage.

Rye: Good cover and fine for green manuring where early spring plowing is possible. Hard to plow under, becomes woody and is slow in decomposing if plowing is delayed until the rye is tall. Rye responds quickly to any occasional nice winter day. Balbo, the most popular and widely adapted variety, primarily used for pasture because it is so palatable, grows like wildfire in the spring and withstands trampling well. Lodges in rich soil and makes poor growth in wet spots, but will do well on somewhat poor soil.

Grasses

You have little choice here. Our major grasses are too slow in becoming established to be profitably used as winter cover, green manuring, or pasturing their first winter. Temporary grass also usually competes too much with companion grass, so as nurse crops, grasses usually find a place only under special conditions as in establishing sodded waterways. Where grass can be added to any legume or cereal cover,

PUSH YOUR PASTURES with International Fertilizers!

Six to eight dollars for every dollar invested is a mighty good return. Yet that's what a lot of farmers are getting by pushing pasture yield and quality with plenty of fertilizer.

It does take quality fertilizer to get top results and that's why thousands of successful farmers are now using *International's Multiple Strength Grades* for pastures and other crops, too.

These high analysis fertilizers give you more plant food in the bag and at a low cost per unit. Fewer bags to handle. Lower transportation and storage costs. Fast, easy application. More even distribution, it flows smoothly, is not dusty. More profit from every dollar you spend because of low unit cost and high crop producing power.

Drop in and see your *International Fertilizer Dealer*. He'll be glad to assist you in selecting the grades and quantity you need and arrange for delivery in plenty of time for prompt application. So don't wait . . . see your *International Fertilizer Dealer* right now—for *Satisfaction at Harvest Time.*

DEALERSHIPS A few excellent dealerships are still available. Please write today, mentioning Farm Quarterly, for detailed information.

International Minerals & Chemicals

plant food division
INTERNATIONAL MINERALS & CHEMICAL CORPORATION
General Offices: 20 North Wacker Drive, Chicago 6

DWARF FRUIT TREES

BEFORE YOU ORDER, learn the full story of TRUE DWARF and ESPALIER TRAINED FRUIT TREES. Good early bearing, size controlled trees are the result of careful selection of choice European and Standard varieties grafted onto genuine dwarfing rootstock, adapted to your particular needs.

FREE CATALOG 58 Pages Illustrated

HENRY LEUTHARDT
Port Chester · New York

KING WYSE INC.
FORAGE HARVESTER with CORN and HAY attachments!

INSIST ON KING-WYSE crop handling equipment for high capacity, top performance and long service! Enjoy all the time-and-money saving features offered in this outstanding line of forage harvesters, crop blowers, power drag feeders and portable elevators.

KING-WYSE · INC.
ARCHBOLD · OHIO

SAVE ½ ON FARM BUILDING COST WITH NATIVE LUMBER

The Belsaw ONE-MAN Sawmill produces smooth, true-cut lumber from any farm wood lot . . . Easily handles logs 8" to 36" in diameter.

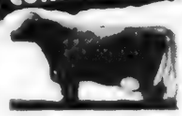
Low-Cost Belsaw can be powered with tractor or old auto engine. Requires no previous experience. FREE Book tells how to *save* with native lumber . . . Send today for your copy of "How To Make Lumber".

BELSAW MACHINERY CO
8576 FIELD BUILDING
315 WESTPORT ROAD, KANSAS CITY 11, MO.

AMERICA'S BEST AGRICULTURAL
HI-CLEARANCE SPRAYER
SELF PROPELLED
write for information
HAHN, INC.

THE HI-SPEED SPRAYER

MILKING SHORTHORN'S 2-WAY BARGAINING POWER BRINGS GREATER PROFITS UNDER ALL CONDITIONS!



When times are good, farmers make good profits with Milking Shorthorns. When times are tough, you STILL make nice profits. That's true because even if beef and milk are in oversupply and prices drop on both, you still have both barrels loaded! You have 50% more bargaining power than specialists. Under AVERAGE farming conditions, Milking Shorthorns will give more profit because they convert home-grown feeds and roughage into meat, milk, and butterfat most economically. Get the interesting, indisputable facts about DUAL-PURPOSE Milking Shorthorns. Either subscribe to Milking Shorthorn Journal, 6 months, $1.00; $2.00 per year; 3 years, $5.00; or write for FREE Details.

AMERICAN MILKING SHORTHORN SOCIETY
313-FQ S. Glenstone Springfield, Missouri

the sod gives better erosion control and makes good bottom-grass grazing.

Ryegrass: This is the one temporary grass cover crop that does well under all soil and climatic conditions. It can become a weed. Very vigorous and competitive but becomes woody in late spring and dies around June, reseeding in most instances. Not fussy as to drainage or light. The most sod-forming cover crop. Ryegrass covers quickly for temporary lawns, is a good nurse crop for permanent pasture mixtures, does well between the rows of cultivated crops if sown not later than early fall (north) but may be sown on frozen ground and will take off in late winter.

Tall Fescue: Lately being recommended with reservations as cover where seeding can be made in September or earlier. Both the Kentucky 31 and Alta (Oregon) strains give heavy, coarse winter pasture and protection. The roots penetrate deep to open up hardpan soils. The Kentucky variety is hardy throughout the corn belt and the southeastern states. Alta fescue is hardy in all northern areas.

Legumes

In southeastern Virginia, at least half the peanut, corn, cotton, and soybean fields are left bare over the winter. Virginia Polytechnic reports estimate that "over $4.000,000 in plant food is lost annually on those 500,000 acres, that could be saved through use of cover crops." Most of that loss is in nitrogen. In soybean crops alone, two-thirds of the nitrogen fixed by the soybeans is lost if not followed by a cover crop. Each such acre without cover wastes about 60 pounds of nitrogen—worth about $10.00 in bag form.

In experiments at Williamsburg, corn averaged 50 bushels per acre without cover crops preceding and without commercial nitrogen. A crop of crimson clover turned under as the only nitrogen brought yields of 104 bushels in the succeeding corn crop. Hairy vetch, without commercial nitrogen fertilizer, upped a cotton yield from 1,318 pounds to 1,660 pounds.

Experience above the Mason-Dixon line is similar. In Ohio tests, sweetclover seeded in oats and plowed under the next spring, raised corn yields from 47 to 84 bushels per acre. The chief effect was apparently due to the nitrogen added by the sweetclover, for 600 pounds per acre of sulfate of ammonia (at considerable greater cost

CONNER PRAIRIE FARMS

Dedicated to Producing

QUALITY SEED STOCK IN LIVESTOCK

Production tested incross and inbred boars

R. R. 4 **Noblesville, Ind.**

Write for descriptive folder

Charolaise

THE LARGEST CATTLE ON EARTH ©

FRENCH CHAROLAISE BULL

CHARBRAY - - CHAROLAISE

The Modern Beef Types

MORE RED MEAT

LESS WASTE FAT

MORE HIGH PRICED CUTS

Prolific and Hardy Breeds that Adapt Themselves to Any Climate

Charter Member, American Charolaise Breeders Association

Charter Member, American Charbray Breeders Association

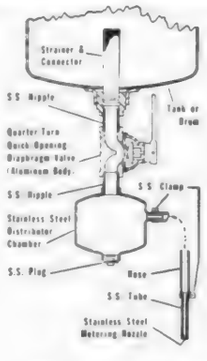
Write or Call

C. H. Langford
Bandera, Texas — Phone 6-3881

O. F. Langford, Rt. 4
Georgetown, Texas — Phone 600M

LAZY V RANCH

BANDERA, TEXAS



Spred - N **Liquid Fertilizer Appplicator Kit** **$82.50**

Now, any farmer, with this corrosion-resisting liquid fertilizer applicator kit and a tractor-mounted drum or tank, can apply liquid fertilizers during plowing, planting or cultivating, or to pastures.

Send order or write for FREE booklet to:

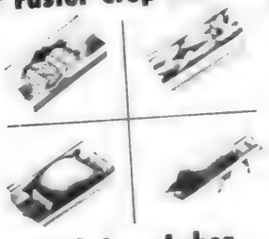
Standard Steel Mfg. Co., Inc. **2137 No. Sherman Drive Indianapolis 18, Indiana**

Give Farm Quarterly for Christmas!

to your good farmer friends this year

$2.00 one year, $3.50 two years, $5.00 three years

22 East 12th St., Cincinnati 10, Ohio

SHIFT YOUR WORKLOAD
to a Harvey RACINE LINES
FARM ELEVATOR
MODEL 300 or 500
For Faster Crop Handling

with Less Labor

at Less Operating Cost

Here's The Secret To
THE HARVEY ELEVATOR

CLOSED. For small grain, shelled corn, ground feed, small seed crops, finely chopped forage, etc.

HALF OPEN. Elevates ear corn and root crops.

¾ OPEN. Elevates bagged material and round bales.

FULLY OPEN. Elevates baled hay and straw.
See Your Harvey Dealer For An On-The-Farm Demonstration Of A Harvey Red-Hed SINGLE CHAIN FARM ELEVATOR • DOUBLE CHAIN FARM ELEVATOR • HANDY ANDY ELEVATOR.

WRITE FOR COMPLETE DETAILS TODAY. FARM TOOLS, INC., MANSFIELD, OHIO, DEPT. A
LEADERS IN BUILDING FAMOUS
RODERICK LEAN • VULCAN • and HARVEY
FARM IMPLEMENTS FOR NEARLY A CENTURY

than the legume) brought yields up to 80 bushels.

Nitrogen in a legume green manure crop is dependent on the yield and the time of turning under. On poor soils in Arkansas, low yields and early March plowing-under returned as low as 25 pounds of nitrogen per acre from either winter peas or vetch. On better Arkansas soils, April plowing of the same green crops, calculated from the tops alone, ran as high as 144 pounds of nitrogen per acre. This represents only two-thirds of the nitrogen in the entire plant.

As protective cover, annual legumes do not have the extensive root system of longer-lived legumes and grasses. On the average, about a tenth of the total weight of an annual legume, like winter peas, is in the roots. With two-year sweetclover or red clover, one-third of the plant weight is below ground. With young cereals like wheat, there may be more roots than there are visible tops.

The farther north you live, the more you are limited in legumes for winter cover and the greater your seeding problem. The longer-lived legumes like red clover don't make enough growth their first season to be used between annual row crops. Seeding of short-lived northern legumes like Hubam clover must be made before row crop harvest, which means trouble. Even with the newer between-the-row seeders, there are fertilizer handling problems and tedious driving. But the bugs are being worked out: the game is proving worth the candle.

Other possibilities as cover crops among the legumes are winter peas, sweetclover, non-hardy alfalfa, lupine, crimson clover, bur clover, and vetch.

When and How to Seed

There're still a number of old one-horse seeders around, all through the corn belt, and they are available in new models too. Some have been rigged up behind garden tractors for planting in corn or cotton of standard row width. At least two companies already have between-wide-row grass and grain drills for seeding before corn harvest in crops planted in 60, 72, or 80-inch rows. A few farmers have reported good corn yields and satisfactory stands of cover crops by planting the corn thickly in two rows the usual 40 inches apart, then skipping one row by using a marker half again the normal length. A few outfits are being tried for seeding between the cotton

HOLSTEIN and GUERNSEYS
All ages—Tested
Ready for top production
Columbia Sheep
Shetland Ponies
LAKESIDE DAIRY FARMS
SILVER LAKE, INDIANA

FORMULA FOR PROFITS

ONE-MAN PACKAGED FEED PLANT
Shown with 500-lb. Batch Mixer, 10" x 10" Krimper-Kracker and 14" Rotary Knife Granulator. Other sizes 100 lbs. to 6,000 lbs. Any item available separately. Also molasses attachment. CRIMPS, GRANULATES DUST-FREE and operates with small motor or tractor. Discharges correctly balanced rations into bags or trucks. No millwright work or installation cost. PUTS YOU IN THE DRIVER'S SEAT in any livestock feeding program. Users everywhere because it's deliberately priced to sell. Write TODAY for free samples and catalog.
H. C. DAVIS SONS'
Dept. FG-3 BONNER SPRINGS, KANSAS

HARDY GRAFTED NUT TREES
The Blight resistant Chinese Chestnut is really "ringing the bell" as an ornamental and orchard crop. Crop Trees for Cattle Forage and Market. Our nut and crop trees, selected for quality and early bearing are the future's landscape tree and a simple solution with profit for America's naked hills. Don't miss them. Write for amazing list.
NUT TREE NURSERIES
DOWNINGTOWN, PA. BOX Y

SOIL ANALYSIS
FOR GOOD GROWING WITHOUT GUESSWORK

Your only reliable guide to lime, humus, plant foods and trace elements
• WHAT TO USE?
• HOW MUCH TO USE?
• WHEN TO APPLY IT?
• HOW TO APPLY IT?
Have higher yields, better quality crops, healthier livestock, more productive acres. Assure intelligent management of your greatest asset—LAND
Write today for full information and soil sampling directions
EDWIN HARRINGTON • Agricultural Chemist
CARVERSVILLE, BUCKS COUNTY, PA.

RID YOUR FIELDS OF TROUBLESOME STONES
PIXTONE
THE New MECHANICAL STONEPICKER

Picks up, carries, dumps stones 1½" to 8" in diameter—clears up to 4 acres a day. Saves labor, eliminates many implement breakages, increases efficiency and productivity. Also clears stones from pasture land. Write for literature, giving name of your dealer to arrange demonstration.
BRIDGEPORT IMPLEMENT WORKS, Inc.
Dept. D Stratford, Conn.

middles. One row-straddling fertilizer distributor with seeding attachment comes equipped with special high wheels, permitting row crop interplanting up to tractor clearance.

Seeding by hand with a cyclone seeder just before the final cultivation for large seeds and just after cultivation before the ground settles for small seeds is still being done. Fertilizer can be added by side dressers mounted on the cultivator. Rain will usually cover the seed. The old-fashioned method was to follow hand seeding with a horse dragging a looped log chain or one section of a drag harrow.

A farmer in Illinois has gotten together a home-made but effective seeder by mounting the grass seed box from a grain drill on the rear of his lift-type cultivator. Drag chains cover the seed lightly as it is dropped.

Airplane seeding has been successful in a few instances but as with hand broadcasting it is well to increase seeding rates about one fourth to allow for seed lost through shallow covering. Winter injury will be reduced by cultipacking even if the cultipacking must wait till after row crops are harvested.

Where regular drilling follows row crop harvest, disking is the only preparation needed. After soybeans, which leave the ground very loose, all that is needed is a once-over with a spike tooth harrow before seeding the cover crop. Where meadow aftermath is reworked for fall seeding to winter cover, plowing, trash mulching with a tiller, heavy disking, and one-way disk plowing are all satisfactory.

When to Plow Under

A cover crop should always be turned under when immature and succulent or it will be slow to break down and decay. Woody stems take much longer to rot and are a much poorer source of humus. Green manure crops can stand a little longer under irrigation for moisture competition is no problem.

It's better to plow under a few inches of green growth rather than tall over-ripe tops. Recommendations call for plowing green crops under at least two weeks and preferably four weeks before cultivated crops are planted. Soil bacteria, which work on organic matter, multiply rapidly and use nitrogen from surrounding soil as well as from the decaying green manure. That's why additional plow-down fertilizer is advisable, not only for the next crop, but for the bacteria which feed on nitrogen. You'll get it back later, when the corn most needs it.

Most small grains reach their maximum nitrogen content when knee high. Legumes may grow a bit longer than non-legumes before being turned under. One exception is sweet clover, which becomes stemmy fast and which gathers little nitrogen after it attains 4 to 6 inches in height.

Agronomists agree that animal manures spread on cover crops greatly hasten de-

5-HP GRAVELY Makes Tough Jobs EASY!

Gravely does jobs other tractors won't . . . because Gravely has that *extra* power for tough mowing, gardening, field and farm jobs.

And you get *more* when you get Gravely: All-gear drive, power reverse, simple, easy operation, power attachments *securely* mounted, quickly interchanged by only four bolts!

PLUS . . . 21 JOB-RIGHT TOOLS!

Your choice of 21 tools . . . used with one versatile tractor that saves you time, work, worry, *all year long.*

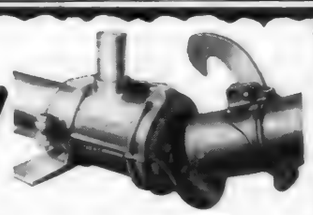
"Power vs. Drudgery" booklet shows how Gravely solves your upkeep and gardening problems. Write for it today!

GRAVELY TRACTORS, INC.
BOX 932 DUNBAR, W. VA.

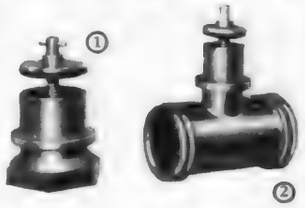
Please send **"Power vs. Drudgery"** and dealer's name.

NAME_____
ADDRESS_____
CITY_____ STATE_____

HARDIE
Rain Control
PORTABLE SPRINKLER IRRIGATION SYSTEMS



NO SURGING!



● Exclusive patented valves that eliminate the expense, delay, waste and trouble caused by surging—

● A specially designed coupler with two-bolt foot clamp and two-bolt ring clamp for steel hook that provides quick easy attachment to any irrigation pipe, under any and all conditions and without welding, punching or drilling—

These are only two of many money saving and labor saving features in the Hardie Rain Control Portable Sprinkler Irrigation System. No complicated parts. Easily installed. Fits any acreage. Responsible distributors and dealers everywhere. Free engineering. Write for complete information.

ULTRA MODERN VALVE DESIGN

The valves illustrated are: 1—Riser valve to make lateral connections to main line. 2—A portable main line valve coupler. 3—Valve opening elbow used to open and close 1 and 2 together with connecting lateral lines to valves. There are many other Hardie Rain Control valves of exclusive, advanced design which provide operating ease and economy.

OTHER HARDIE PRODUCTS

Air Blast Sprayers, High and Low Pressure Sprayers, Advanced Row Crop Dusters, Spray Pumps, Engines, Spray booms and guns, Spray hose, nozzles and accessories used for pest control in orchard, grove and field.

HARDIE
PEST CONTROL EQUIPMENT
SOLD AND SERVICED ALL OVER THE WORLD

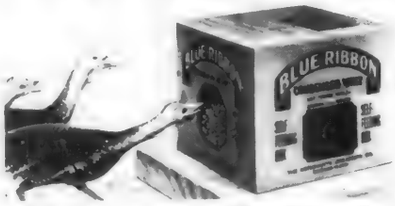
The Hardie Manufacturing Company
Hudson, Michigan Dept. F

3825 Sante Fe Ave., Los Angeles 58, Calif.
1435 N. W. Northrup St., Porland 9, Ore.

Please send ☐ Rain Control Catalog ☐ Sprayer Catalog ☐ Duster Catalog.

Name_____
Address_____
City_____ State_____

*Try This
PROFIT MAKER



50 lb. self-feeding boxes

For . . .
TURKEYS and POULTRY

*Blue Ribbon Condensed Whey contains vital milk vitamins, minerals and nutrients to assure maximum growth, health and finish . . . and maximum profit for you. Keeps birds eating—prevents setbacks—tones up digestive tract—promotes rapid growth—builds resistance to disease. Blue Ribbon Condensed Whey is the miracle additive for more profit in raising turkeys and poultry.

BLUE RIBBON
CONDENSED WHEY

Compare this Analysis

Riboflavin 6.50 mg. per lb.	Lactic Acid 12.%
Vitamin C 20. mg. per lb.	Lactose (Milk Sugar) 41.%
Niacin 6. mg. per lb.	Fat 5%
Choline 700. mg. per lb.	Milk Minerals 6.%
Pantothenic Acid 8. mg. per lb.	Milk Protein 8.50%
Vitamin D 2700 IC Units per lb.	Fibre ..... None
	Total Solids .....62.% (including lactic acid)

Ask your dealer for Blue Ribbon

THE MERCHANTS CREAMERY CO.
536 Livingston Street Cincinnati 14, Ohio
Plants throughout the Central West States

SAVE $11 to $16 a ton on feed with . . .

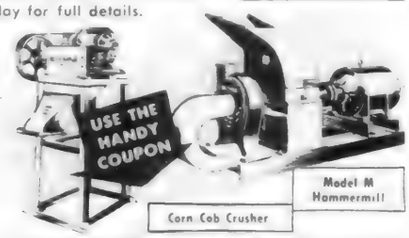
MIX YOUR OWN FEEDS

KELLY DUPLEX
FEED MIXERS

Mix your own cattle, hog, poultry feeds. Get a perfect blend in 10 minutes, save 55c to 80c per 100 lbs. Rugged—easy to operate—absolutely noiseless.

It's just as easy and profitable to make your own poultry litter with a Kelly Duplex Cob Crusher—or to grind grain with a Kelly Duplex Hammermill. Satisfaction guaranteed or your money back. Mail coupon today for full details.

Vertical Mixers — all sizes—small as ½ ton



Model M Hammermill

Corn Cob Crusher

CLIP COUPON AND MAIL TODAY!
The DUPLEX MILL & MFG. CO., Box 11, Springfield, Ohio
Send me full details on items checked.
☐ Feed Mixers____ton cap. ☐ Cob Crusher ☐ Hammermill
NAME_____
ADDRESS_____

cay. They likewise suggest disking cover crops prior to plowing unless the soil is in a condition to pack. An important point to remember: Completely inverting the furrow slice results in a blanket of unrotted material which the disk does not touch in soil preparation. Both decay and capillary action is retarded. Furrows resting at an angle can be cut with a disk and the cover crop mixed throughout the topsoil.

A Word of Caution

Cover crops are not cure-alls and they mean work. In regions of light rainfall, unless crops are irrigated, green manuring is impractical for it robs the succeeding crop of moisture as it rots. In other instances, cover crops depress yields and farmers alike. In Tennessee rye is blamed for lowering the quality of the tobacco, and crimson clover, perhaps because it increases nitrogen beyond the point of benefit, has cut tobacco yields in Maryland. In dry summers anywhere, green manure crops can easily give cultivated crops a set-back.

ARE SHOWS SLIPPING?

(*Continued from page* 31)

time ago. I'd rather see the cow herd that the bull comes from, the kind of calves he is getting, and the cows that are dropping them. You can't make an intelligent selection of bulls when they're all fitted out in show condition."

Then he began to recount his experiences with bulls bought off the show circuit—the one that oozed paraffin from a filled shoulder, the one that died in pasture with a burst blood vessel.

No one will deny that high fitting is injurious to the health and fertility of cattle. A breeder who studied the official records says that approximately fifty per cent of the grand champion cows of the breed he studied never produced a calf. Seventy-five per cent of those that did calve failed to conceive the second time.

The experience doesn't seem to be as hard on bulls, though it takes several months to unwind a show bull and get him in shape for service. The same man who kept records on the cows is of the opinion that the reproductive lives of most show bulls are shortened.

Show cattle constitute only a fraction of one per cent of our beef cattle population, but show bulls and cows are supposed to represent real progress in breeding and should be the seed stock of the future. If they are damaged, progress is slowed down.

Blame for over-fitting of breeding stock does not lie entirely with the people who are doing the job. As one producer puts it, "The very guys who yell about it most are the ones who cause it. They all come around and say 'We don't want to buy fat, over-fitted bulls.' But if you want to know how it feels to be murdered, just

Free Booklets on Farm Building

Send for free booklets: *"Planning a Farm Home"* outlines a new, practical method of planning. . . . Fully illustrated. *"How to Build Farm Buildings That Last Longer."* Full of valuable tips and suggestions. Pocket size. Illustrated. *Write to:*

WEST COAST LUMBERMEN'S ASSN.
ROOM 650, 1410 S. W. MORRISON • PORTLAND 5, OREGON

HASCO EAR TAGS
FOR LIVESTOCK
Economical. Easily applied.
Cattle Size—$13.00 for 500
Sheep-Hog Size—$9.95 for 500
Applicator for applying $2 ea.
Identical name stamping on 1,000 or more tags—no charge . . . less than 1,000 tags—$1.80 net.

NECK CHAIN TAGS

1" numbers, both sides. Complete cow set: brass tag 2⅜ x 2½", 40" chain, and attachment link. Per set—dozen lots—$1.50 each. F.O.B. Newport.

AUCTION SALE TAGS

Style No. 136. 1¼" diameter. 1" black number, both sides, on white background, $7.95 per 500 quantity.
Hog rings for attaching—$1.75 per 500.
Ringer—50c each.
Also complete line of Bull Rings, Ear Notchers, Cattle Leads. Prompt delivery.
Write for free circular and additional information.

NATIONAL BAND & TAG CO. Dept. 6-734. NEWPORT, KY.

UNIVERSITY TESTED
Universally Approved
FOR SAFETY AND FLAVOR!

Only the SAFGARD PRES-VAC Milk and Cream PASTEURIZER

MODEL P-3000
f.o.b. factory $37.50
Cap. any amount up to 2 gallons

assures completely *safe* milk with *natural flavor.* This has been proved by phosphatase and other scientific tests made by the Dairy Technology laboratories of a prominent university.

The SAFGARD'S faster *pressurized heating* and complete *all-over* water bath thoroughly destroy all harmful bacteria. *Vacuum-sealed cooling* keeps in all the natural flavors and health-giving vitamins. *One year guarantee.* Ask your dealer for the SAFGARD Pasteurizer. For FREE descriptive circular write
Dept. 9-FQ

SAFGARD DIVISION
GRAND SHEET METAL PRODUCTS COMPANY
MELROSE PARK, ILLINOIS

take some bulls in good, hard pasture condition and drop them in a sale."

(5) Artificial and, in many instances, unethical practices have become commonplace in the show ring.

The shows all warn that "any artificial means of removing or remedying the physical defects or conformation in exhibition cattle, such as cutting ties or lifting and filling under the skin, will be considered as fraud and deception. All animals giving evidence of such treatment will be barred from competition . . ." As we learned from the Volstead Act a law has no chance for enforcement if the people are not solidly behind it.

The cutting of ties (cutting the muscle that holds the flesh to the backbone at low spots in the back or around the tail head to give a smooth top line) has never been practiced in the British Isles and British cattle show the result. The ties have been bred out. On our circuits the cutting of ties is usually regarded as no less ethical than castration. Filling (pumping oil or air under the skin to fill out depressions) is looked upon as fraud, but is prevalent enough to be a constant source of suspicion.

The use of nurse cows, from a commercial cattleman's viewpoint, is a downright silly practice. Practical men say if a calf comes from a line that doesn't produce enough milk to make him an economical product, the line had better be junked. Yet in their efforts to provide fat and condition, showmen keep their calves on nurse cows, often as many as two or three cows to a calf, until months after any sensible weaning time.

A government research man who has spent a lifetime working with cattle breeding problems has a bright suggestion, "The first breed that prohibits nurse cows will leave the rest far behind. Make it a hard rule; cancel the membership of any man who uses nurse cows. The improvement will be immediate and astonishing."

We Need the Shows

These are serious accusations against the cattle shows. Even if guilty, the verdict cannot be "off with their heads". The show is still the best place to demonstrate progress—when real progress is being made. The breeder, the rancher, the farmer, the feeder, all need inspiration; they all should have ideals toward which to strive. The shows give them a meeting ground where they can exchange ideas and see what the other fellow is doing.

There has never been developed a better market place or a better advertising medium for purebred animals than the stock show. Here a breeder can display his wares to more potential buyers in a day than he could in months or years on his farm or ranch.

The show is as indispensable an institution to the cattle business as the steering wheel is to the automobile. Like the steering wheel, it furnishes none of the motive power, but it is a powerful force in guid-

BIGGEST IRRIGATION NEWS IN YEARS!

NEW! RAINMASTER

CMC TRAC-TOW PUMPER

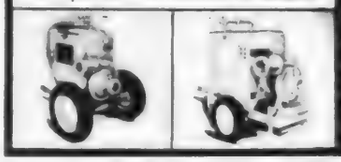
- FOR SPRINKLER IRRIGATION SYSTEMS
- USES POWER TAKE-OFF ON 20-30 H.P. TRACTORS

Completely new, low-cost, convenient, trouble-free method of using tractor power for irrigation. Especially designed for, rather than adapted to tractor powered sprinkler irrigation pumping. Does job at less cost, less attending care. Up to one acre inch water per hour.

Unitized construction — integral speed increaser. TRAC-TOW a ready-to-run package, no extras to buy, no parts to assemble.

A Complete RAINMASTER Line 16 Models, 100-1400 G. P. M.

Each CMC RAINMASTER Pump a packaged unit consisting of pump, close-coupled to power plant complete with priming devices — ready to operate. Write for full details.



Mail Coupon for FREE Literature

Construction Machinery Co., Waterloo 1, Iowa
Gentlemen: Please rush me FREE information on the New TRAC-TOW Pumper.

NAME _____

ADDRESS _____

CITY _____ STATE _____

INCOME OVER FEED COST INCREASED

300% WITH GUERNSEYS

Dan Gill of Nesbit, Mississippi, who, at the age of 35, has achieved the success many dairymen hope for — and rarely attain. With 17 registered Guernseys now included in his herd of 68 head, he is gradually building toward an all-purebred herd.

7-Year Record Shows Steady Increase In Income Over Feed Cost

Year	No. Cows	Lbs. Milk	Lbs. Fat	Income Above Feed Costs
1947	37	5043	232	$144.55
1948	39	6175	[illegible]	203.89
1949	40	7085	321	254.83
1950	40	7432	330	262.56
1951	37	7986	359	267.81
1952	39	7355	341	335.66
1953	38.5	8436	416	428.97

FREE... TO HELP YOU BUILD YOUR OWN PROFITABLE BUSINESS WITH REGISTERED GUERNSEYS ▶

That Guernseys are more profitable is being proved by Dan Gill. He started dairying with "just cows" in 1947, showing a first year's average income over feed cost of only $144.55 for 37 head. But *now* . . .

$428.97 average income over feed cost for 39 cows is the current record. Credit for this amazing increase is due to the introduction of purebred Guernsey sires, plus good management on the part of this hard-working and ambitious young dairyman.

SEND FOR THIS GUERNSEY LITERATURE

1 SUCCESS WITH GUERNSEYS. Leading breeders give facts about their own Guernsey profits.

2 28-PAGE GUERNSEY BOOKLET. Valuable information about America's favorite, earliest-maturing breed.

3 NATIONAL GUERNSEY DIRECTORY, listing breeders with foundation stock for sale.

CLIP! FILL OUT! MAIL TODAY!

THE AMERICAN GUERNSEY CATTLE CLUB
456 Main St., Peterborough, N. H.
Send FREE information listed above to:

Name .....
Address .....
Town ..... State .....

START NOW PUTTING MORE
BUCKS IN THE BANK

Save Up To
40%
On Fuel Bills!

INSULATE NOW
FOR AS LITTLE AS
$67.60
cost for average attic

Do It Yourself in ONE Afternoon with

ZONOLITE®
INSULATING FILL

It's true. In just four short hours, you can insulate your home—with Zonolite vermiculite, the miracle insulating mineral that pours into place! You'll start *putting bucks in the bank* immediately...by saving $100.00 to $150.00 on installation costs! You'll save up to 40% every month—all winter long on fuel bills. Besides, Zonolite insulation adds to the value of your home. No matter how you figure it, you start putting bucks in the bank when you *insulate with Zonolite:*

100% FIREPROOF...rotproof, vermin-proof! Permanent—Zonolite will outlast the life of any home. *Free* book tells how you can insulate for as low as $67.60. Or, step into your friendly lumber or building supply dealer today for free estimate.

ZONOLITE BRAND VERMICULITE INSULATION

FREE!
SEND FOR FREE BOOK. "Safety, Comfort Savings in Your Home." Shows easy way to insulate your home.

Zonolite Company, Dept. FQ-54
135 S. LaSalle St.
Chicago 3, Illinois

Please send free booklet HI-47, "Safety, Comfort, Savings in Your Home." Telling how I can easily insulate my home myself.

Name.....
Address.....
City.....Zone....State.....

AT LUMBER AND BUILDING SUPPLY DEALERS

ing the vehicle in the right direction. Those who have been watching the signs feel we are making a mistake in our extreme concern for type, and are neglecting the scientific approach to better breeding and feeding.

While it may be true that some of the criticism comes from disgruntled individuals who failed to get their share of blues and purples, the bulk of it is from thoughtful critics who are deeply concerned with the good of the cattle business. Their criticism is not all negative. They have some good ideas about how to better the situation. Here are some of their suggestions:

(1) Do a serious job of re-defining type. Make the correlation between conformation and beef producing ability and efficiency a scientific formula. If short legs, wide, narrow heads are meaningless, forget about them. If longer backs will put a larger proportion of valuable cuts on a carcass, let's have longer backs. One observer has noted, "The turkey raisers developed the broad breast; what we need are longer backs."

Carcass Classes

(2) Put more emphasis on carcass classes. The enthusiasm of the associations for these events is in direct proportion to the number of times their breed has come up with a winner. Unbiased observers feel they are the climax of the whole show, the final test of the producer's skill. Here's how one veteran showman and topflight breeder feels about them: "For years I followed every carlot class at Chicago through the coolers and I really got an education in beef. That's the only way to tell what's under the hide. But how are you going to get the public interested?"

That's the problem. There's little glamour in a carcass and it's an expensive proposition to build a glass enclosed cooler large enough to exhibit a whole string of carcasses. But there's a straw in the wind. The International is increasing its premiums and revising the rules for its carcass competition this fall. One new rule will move up the entry date for the carcass classes, thereby discouraging the entry of carcasses from the weed-outs in the live classes.

(3) Either eliminate the fat cattle classes and the carlot classes or put some common sense in them. Make them a real test of cattle that will show profit on a weight for age basis—or forget about them. The feeder is up against high prices for his land, his grain, his machinery, and the labor he hires. It is the duty of the ring to show him how to make a profit on his investment: not to give a prize to the man who puts more feed and time into an animal than the packer can pay him.

(4) Require that the top animals in all fat classes, possibly as many as ten, be slaughtered and hung on the rail after they have been judged on foot. This

BOWSHER
PORTABLE and STATIONARY FEED MILLS

Give You FASTER LIVESTOCK GAINS

Don't burn Your Corncobs! . . . Turn them into profitable Low-Cost Roughage with a BOWSHER MILL... perfect for grinding corncobs, ear corn, shucky corn and shelled corn, giving a granular product WITHOUT DUST.

GREATEST IMPROVEMENT IN GRINDER CONSTRUCTION

THE ORIGINAL CONE SHAPED BURR FEED GRINDER

TRIPLE ACTION • CUTS CRUSHES • GRINDS

Cone shaped burrs, two sets of knives give extra capacity up to 220 bu. per hour.

CUTS LABOR COSTS IN HALF

Hopper adjustable to three positions. Spout swings in complete circle, saving shoveling.

MAKES PERFECT CORNCOB POULTRY LITTER

Satisfaction Guaranteed . . . Write at once for circular and name of nearest dealer.

THE N. P. BOWSHER CO., Inc.
915 S. Webster St. • South Bend 21, Ind.

ADD-A-UNIT
REMOVABLE UNLOADER
Most Efficient, Economical, Versatile

Cuts production costs. Increases return on equipment investment.

Each Component a Necessity on Every Farm

HOTCHKISS STEEL PRODUCTS CO.
Dept 23-O • Bradford, Illinois

INCREASE
the profits
from your Farm!

It can be done! Using the latest scientific and practical ideas, an experienced Farm Manager will produce maximum returns—and conserve the resources of the farm for the future. He will guide your present tenant, or secure a satisfactory tenant for you. . . . Why not investigate?

Do you know the present value or long range possibilities of your farm? A trained Rural Appraiser will give you the facts in a detailed written appraisal on which you may depend. You need this information, too, if you are buying or selling a farm.

Write today for full information and list of Professional Farm Managers and Rural Appraisers in your area. No obligation, of course.

H. E. Stalcup, Secy.-Treas.
American Society of Farm Managers
and Rural Appraisers
Box 67, Storm Lake, Iowa

would not only have great educational value but would put a stop to the practice of carrying fat cattle on from show to show.

(5) Give some thought to the elimination of inter-breed competition. Many breed officials admit privately that they would welcome this, yet none of them is willing to take the lead in working it out. Each of the breeds has its own points of superiority and weakness and for one breed to copy another's strong point will lead only to unnatural characteristics—stripes are fine on a zebra, but wouldn't do on a palomino. There's room in this broad land for all of the breeds to be themselves.

Progeny Testing

(6) Give recognition to progeny testing. Here is a method of selection that is based not on eye appeal but on records of performance. In a manner similar to the performance tests run on dairy sires, beef bulls are checked for their rate of gain on feed and their get are put through the same tests. Such testing has shown rapid gaining ability to be hereditary and this is an element that cannot be ignored in selecting better strains of cattle. Cattlemen must have rapid gaining ability in their stock. It is up to the shows to see that they get it without sacrificing quality.

It won't be easy to work this kind of thing into the show scheme. It may require an exhibit without premiums rather than a competitive showing. The Pacific International at Portland has had such exhibits, sponsored by state and county organizations, in the past. The International at Chicago recognizes the importance of the work and is planning progeny exhibits for this fall.

(7) Enforce existing rules against unethical practices. Clamp down on the guilty.

(8) Eliminate the use of nurse cows.

(9) Discourage the high fitting of breeding stock. This might include the elimination of two year old heifer classes.

(10) Take another look at the Danish system of judging. Under this system the judge has it within his discretion to award any number of first, seconds, thirds, etc., if in his opinion there is little or no difference between the top animals in a class.

To many a dyed-in-the-wool showman this is "sheer socialism." They say, "The American people believe in competition, they want a winner." Call it what you will, the notion has its good points.

(11) Inaugurate cattle exhibits similar to the commercial and industrial exhibits now seen at our fairs. Seed dealers, tractor and implement men do a great job of selling the public on their products with commercial exhibits. Let the man with a better bull rent space and do likewise. Conner Prairie Farm, Noblesville, Indiana, has been merchandising its hogs this way at the Indiana fairs.

(12) Let the breed associations establish a standard of performance for each

Bedding for 50 Cows in 5 Minutes!

Hi-Speed Bale Breaker does the job with hay or straw

DAIRYMEN This new machine tears apart and breaks up 5 bales of straw a minute and turns them into light, fluffy bedding material. The bedding is easier to spread, more absorbent and easier to fork out. Pays for itself by savings of 25 minutes in every half hour.

FRUIT GROWERS The portable model of the Hi-Speed Bale Breaker will mulch 500 fruit trees a day; or supply mulch for one acre of berries an hour. Trees and berries mulched with hay or straw in this way have better air insulation from cold; and rain water is fed to them slowly.

HIGHWAY MAINTENANCE The Hi-Speed Bale Breaker, mounted on a truck, will mulch a mile of newly seeded berm in an hour. Protects and conserves bare earth.

The Hi-Speed Bale Breaker breaks and fluffs 5 bales a minute!

Tested and proven for 2 years, in the barn and orchard

Whitacre Industries
R.D. 3, Salem, Ohio

WHITACRE INDUSTRIES, R.D. 3, Salem, Ohio

Please send full information about your

☐ Power Take Off Mobile Unit
☐ 11 H.P. Gasoline Engine Skid Unit
☐ 2½ H.P. Electric Motor Skid Unit

Name .....

Address .....

Town ..... State .....

2-Way LIGHTNING PROTECTION

FOR FARM BUILDINGS

Lightning never has destroyed any building fully protected by Security System. It guards against new perils of metal ducts, piping, etc. Uses most durable materials, all UL approved. Low points, neat, almost invisible.

FOR ELECTRICAL APPLIANCES

Green Guard Protective Capacitor is the only such device approved by Underwriters Laboratories, Inc. Holds lightning surges to *less* than line voltage, protects heaters, lamps, motors, etc. Guaranteed for five years. Send for full story. Security Mfg. & Contracting Co., Burlington 5, Wis.

SECURITY LIGHTNING PROTECTION IN THE MODERN MANNER

AN ALL'ROUND PUMP for the FARM

The MIDGET 1½" *Lightweight*

For farm uses too numerous to list! Pumps 400 times its weight of water per hour at average heads. Primes in 75 sec. at 25 ft. suct. lift. Has maximum lift of 30 ft. (Sea level). Weighs only 62 lbs.

GORMAN-RUPP LIGHTWEIGHTS COME IN 4 SIZES:

The Midget 1½"	— wgt. 62 lbs.	—	5,850 G.P.H.
The Pelican 2"	— wgt. 70 lbs.	—	8,000 G.P.H.
The Hawk 2"	— wgt. 110 lbs.	—	11,000 G.P.H.
The Eagle 3"	— wgt. 117 lbs.	—	18,000 G.P.H.

Send for Bulletin 7-LW-13

THE GORMAN-RUPP CO.
MANSFIELD, OHIO

breed, based on weight gains of a specified number of pounds per day from birth to weaning, and specified daily gains in the feed lot. Tie this in with a type score to maintain quality. This would do much to de-emphasize eye-appeal.

Heifer Clubs

(13) Replace calf club projects with heifer clubs for the juniors. One of the breed associations has been doing this with a lot of success. The boy or girl starts out with a bred heifer. The first year of the project she is usually shown as a junior yearling, summer yearling, or calf. Showing the second year is usually discouraged because "there is danger of excessive and costly feeding", so the literature says, "that may delay the heifer's production and endanger the effectiveness of the long range program." The program plans that there will be classes offered for the progeny of the heifers in subsequent years.

"A kid can feed steers for 10 years in calf club projects and wind up with nothing," says one of the promoters of this plan. "With a heifer project he'll have a herd of 17 females or more at the end of 10 years and he'll have had enough bull calves to pay the freight. He'll also have learned the fundamentals of a practical breeding business and how to take the bitter with the sweet."

(14) If calf clubs are to be continued, let's deflate the ballyhoo and reinstate their educational values. In localities where the projects wind up with the show and sale, the members know they are insured at least the top of the market for their calves regardless of their efforts. Yet according to club leaders only the few who come out on top in the auction actually show a profit. Many a leader can tell of his telephone and doorbell campaigns with packers, hotels, restaurants, and any others who looked like good prospects to come out to the sale and help bail the kids out.

Records, too, they admit bear only a coincidental relationship to the real cost of the project.

To remedy this situation the trend in many places is a demand for stricter record keeping, close inspection of the projects while in progress on the farms, the application of a modification of the Danish system to the judging, and the pooling and sale of the cattle by market grades. In other places definite limits are placed upon the amount for which the Grand Champion and Reserve can be sold.

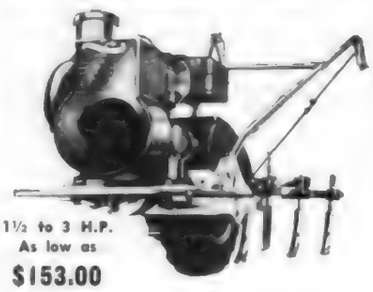
A drawback of some of the calf clubs has always been the inability of the poorer youngsters to obtain animals on a par with those that could be purchased by members from wealthier families. This situation has been remedied in some clubs by having the county agent or a selection committee pick a group of calves of very similar quality and distribute them to the youngsters by lot. Public spirited individuals have been stepping in, too, and help-

"Easy Does It"
when you use a
CHOREMASTER
CHAIN SAW

As low as $207.50 complete. Freight Extra.

Two Ranges of Horsepower. Notches, fells and trims toughest trees fast! Powerful. Lightweight. Anyone can operate it . . . everyone can afford it. Truly trouble-free.

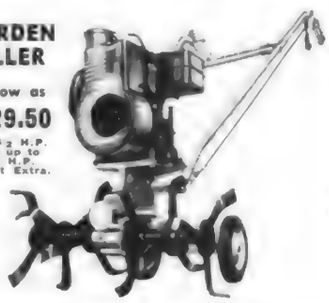
ONE WHEEL GARDEN TRACTOR



1½ to 3 H.P.
As low as
$153.00
Freight Extra.

Single power unit plus low-cost attachments makes power mower, cultivator, snowplow, sickle bar, other work savers. Features NEW Tiller Attachment . . . real money-saving combination.

GARDEN TILLER
As low as
$129.50
for 1½ H.P. Also up to 2½ H.P. Freight Extra.



Easy to use, self-contained unit does all ground work in one clean sweep without attachments.

ROTARY MOWER
With LOW-COST LEAF-MULCHER ATTACHMENT. Makes mowing and weed cutting fast, safe, easy! "Fine cuts" 18-inch swath. Quick change mulcher grinds leaves to fertilizer particles.

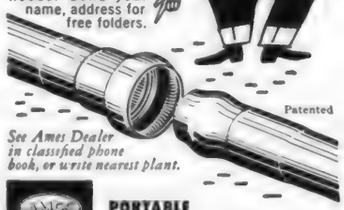
As low as
$91.95
Freight Extra.

Write Today for dealer name, Free literature.

CHOREMASTER DIVISION
WEBER ENGINEERED PRODUCTS, INC.
806-3 Evans Street
Cincinnati 4, Ohio

ONLY AMES PIPE has the ABC COUPLER

AMES irrigation pipe with the Ames Ball Coupler locks and seals itself by water pressure...no hooks, no gadgets. Systems engineered to your needs. Send your name, address for free folders.

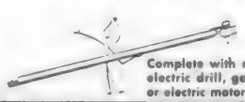


Patented

See Ames Dealer in classified phone book, or write nearest plant.

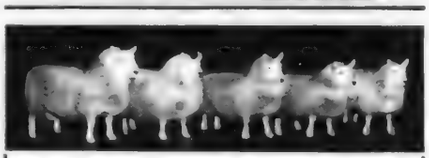
AMES PORTABLE IRRIGATION EQUIPMENT
W. R. AMES COMPANY
150 Hooper St., San Francisco 7, Calif.
3905 East Broadway, Tampa 5, Florida

Pays for itself in 4 hours!
JR. LOADER 11 ft. ONLY $19.50
16 ft. $24.50 21 ft. $29.50



Complete with mount for electric drill, gas engine, or electric motor.

MAYRATH
DODGE CITY, KANSAS



CHEVIOT SHEEP
Produce fine, healthy lambs and generous fleeces of choice wool. They are thrifty feeders, lamb easily and are excellent mothers. Cheviot rams are noted for the superior market lambs they produce when mated to crossbred ewes.
Literature and breeders list available
AMERICAN CHEVIOT SHEEP SOCIETY
R D 3 H Oneonta, N. Y.

Amazing Low Price!
NEW
MEYER
GALVANIZED
PORTABLE
Big 20"
Trough

Biggest elevator value money can buy. Giant 20" trough. Greatest capacity. Amazing low price. Galvanized steel sections. Heavy duty double steel chain. Roller bearings throughout. 8' or 10' tilting conveyor (hopper or bale chute optional). Also heavy duty and junior portable models.
Write for FREE catalog and prices today!
MEYER MFG. CO.
BOX 1952 MORTON, ILLINOIS

ing all of the boys and girls get the kind of calves they can work with to advantage.

These are some of the ways that have been suggested to make the cattle shows of more practical value to the 96 per cent of the nation's cattlemen who class themselves as commercial producers—the men who are depending upon the purebred people to furnish them with the seed stock for tomorrow's ranches and feedlots.

Most cattlemen are not so naive as to believe that these points can be adopted and that, if adopted, fudging will cease. Nor have they become so cynical as to believe that cattlemen are unworthy of trust and that the improvement of the shows is an impossible task. They see the obstacles. The truly great breeders of the past have always turned obstacles into observation posts from which to plan a successful attack. This is what they have in mind for the near future.

THE STANDARDBRED

(*Continued from page 55*)

"He asked me if I'd let him come to see her. I said certainly; and do you know he has come over every year from his home somewhere in New York State just to see Lily Direct. He's an old man, too; must be 75, anyhow. Last time he was here was back in May. He took a train to Wellington, then came out from town by cab. He doesn't care much about anything else on the place—just wants to see his mare. That's the way it is with horses. They just get you."

Besides their own 20 matrons, the Murrays may run as many as 80 or 90 boarders on the place (boarding rates are $45 a month in winter, $30 in the summer) and

BEAUTIFY YOUR FARM OR ESTATE WITH ORNAMENTAL BIRDS

For almost a half century, we have been supplying Swans, Wild Ducks, Wild Geese, Peafowl, Cranes, Pheasants, and other beautiful and exotic birds throughout the world. Write for latest prices.

Mackensen Bird Farm
Yardley, Pa.

Breeders Importers, Exporters of birds since 1904

MURDERS WEEDS, TALL GRASS, BRUSH!

New Rotary Mulch Mower Attachment reduces fire hazards — cuts even heavy brush with ease! Write for FREE 68-Page Book.

Rototiller, Inc. — Manufacturers of Home, Farm and Garden Power Tools and Tractors

English Type RAIL and HURDLE FENCE

Large Stocks . . .
Prompt Shipments . . .
Hand Split Chestnut Rails.
Peeled Chestnut, White Cedar or Locust Posts

FOR LONG LIFE—Entire Fence—(both posts and rails) treated with nationally known—
PENTA PRESERVATIVE

ALL TYPES—From large Estates to Small Homesites.

WRITE FOR CATALOG AND PRICES

WOOD PRODUCTS CO. TOLEDO 12, OHIO

2 h.p. as shown only **134** complete

Ask your dealer for a demonstration; or write us today for informative illustrated full color catalog and name of nearest dealer.
(A few dealer franchises are still available.)

ROTO-HOE GARDEN TOOLS

America's Most Usable Garden Tool!

TILLS — CULTIVATES — COMPOSTS

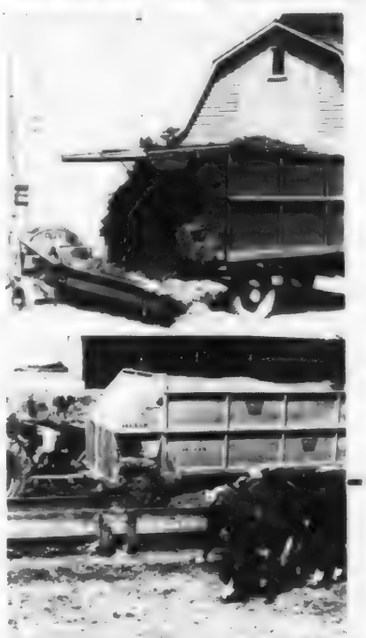
Tens of thousands of users find ROTO-HOE ideal for year 'round jobs. A big machine at modest cost, thoroughly engineered and field proven for over 7 years! It will pay you to investigate.

YEAR 'ROUND ATTACHMENTS
use same basic power unit!

20" ROTO-CUTTER, only $34.50
12" TRIMMER-MULCHER, only $24
16" ROTO-SNO BLOWER, only $38
5 gal. ROTO-ZEPHYR SPRAYER, only $77
Adapta-Cart, for mounting compressor, generator, other tools for easy portability, only $11.50

ROTO-HOE & SPRAYER COMPANY
Box 7 Newbury, Ohio

TAKE HAND LABOR OUT OF FEEDING
with HELIX UNLOADERS



Save Chore Time . . .
Cut Feeding Costs **1/2**

★ Side Delivery Into Feed Bunks with Cross-Conveyor
★ Easy Handling of Green Forage at Silo with Rear-End Unloader

Make your forage wagons do more for each dollar invested. Use a Helix side delivery Cross-Conveyor to speed up feeding chores . . . save time. New design feature permits removal of elevator for filling low bunks or working in cramped quarters.

And at silo filling time (either trench or upright) or when hauling chopped hay, you'll find a Helix Rear-End Unloader the most valuable implement on your farm.

One basic machine does both jobs.

Get the Helix unit your farm operation most needs! Or get a Helix All-Steel Forage Box that is ready punched and drilled for 2-Hour conversion to an automatic unloader.

A new manure spreader attachment is also available . . . makes your Helix wagon an all-purpose implement.

Ask your Helix dealer about the Helix easy to install, easy to remove Barn Cleaner, too.

Clip This Coupon

HELIX CORPORATION
CROWN POINT, INDIANA

For FREE literature, simply print your name and address below and mail to us at Dept. 2-F

Name.....
RR.....
Town..... State.....

besides these they had around 60 foals last spring and 20 yearlings.

Fuel For the Hay Burners

It takes a lot of grain, hay and pasture to feed the 190 head of horses at Bonnie Brae. The rotation is corn, oats, wheat, and two years of meadow. Bill likes to sow rye grass in his corn at the last cultivation, then he turns his mares into the field right after picking.

Bonnie Brae has none of that rich, sweet limestone land of the kind that raises Kentucky horses. It needs a dose of five tons of lime to raise alfalfa; yet the Murrays make 90-bushel corn and equally good small grains and forage crops. Their meadows are a mixture of alfalfa, red clover, ladino, and timothy. They use a hay crusher to cure their hay; reserve the rich, second cutting almost exclusively for their sale yearlings.

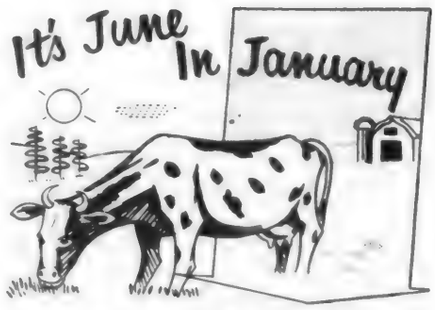
Their pastures are sown to a special blend of fescue, red top, and rye grass that goes by the trade name of Canadian Permanent Pasture. This is supplemented with Sudan grass in mid-summer and rye in late fall and spring. Eighteen to twenty acres of Sudan will carry 40 mares through the hottest, dryest summer, says Bill, then the field is disked and put back into rye.

The mares are given a ration of home-grown hay, oats and corn in the off-pasture season, with a little bran and soybean meal to furnish the extra protein. The weanlings and yearlings get their hay all chopped up and mixed with the grain. Bill figures this reduces hay wastage to a minimum and keeps the colts from getting colic from an unbalanced amount of grain.

The stallions get about the same diet as the mares, only more of it, during the breeding season, with an occasional dose of vitamin oil added. Phenothyazine is used to control internal parasites. Besides this, the weanlings are also treated with carbon bisulfide.

The Yearling Crop

Just as the cattle ranch turns out stockers and feeders, the feed lot produces beef steers and the sheepman sells lambs and wool, the product of the horse farm is its yearlings, the race horses of tomorrow. In the horse business the yearlings are usually sold at the big public sales held in the summer and fall. The big Kentucky trotting horse nurseries like Walnut Hall,



WHEN YOU USE MOLASSES WITH YOUR SILAGE

That's right . . . use MOLASSES to keep your silage smelling sweet, tasting good, and looking fresh and green all winter. MOLASSES will improve the feed value, promote appetite and easy digestion, and help maintain healthy body weight. Using MOLASSES as a preservative will bring you surprisingly good results, right on your own farm. MOLASSES mixed with low cost roughage makes it more palatable and adds nutrition.

Industrial Molasses Corp., Midwest Division, offers 24 hour delivery, a guaranteed year 'round supply, and a free technical service department for all users.

INDUSTRIAL MOLASSES CORP.
MIDWEST DIVISION
5009 EXCELSIOR BLVD., MINNEAPOLIS 16, MINN.

Please send me the following free literature:
MEMO No. 5 about Molasses and Silage ☐
MOLASSES STORAGE TANK INSTALLATIONS ☐
Include My Name on Free Memo List ☐

NAME _____
ADDRESS _____

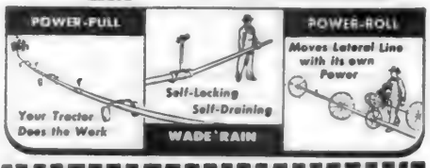
Boost Profits!
Save Labor!
WITH
WADE RAIN
Sprinkler Irrigation

PLAN NOW... Mail Coupon
Free "Farm-Facts" Planning Form

Improves Crops • Increases Yields!

WADE-RAIN Sprinkler Irrigation is revolutionizing crop production by supplying CONTROLLED moisture when it is needed!

Exclusive "LOKS-IN" Gasket ...drains pipe when pressure is off. No Lifting Pipes Full of Water!



R. M. WADE & CO. Since 1865 — 1919 N.W. Thurman St. PORTLAND 9, OREGON — W-26-K

Please send me complete information on WADE-RAIN Sprinkler Irrigation.

Name .....
Address .....
City ..... State .....

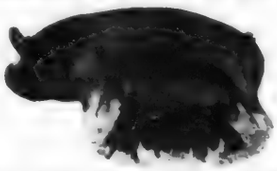
WALDOR Aluminum GREENHOUSES

Since 1946
The BEST greenhouses available—ANYWHERE!

YEARS OF PLEASURE—and profit if you wish—with a superb greenhouse that is really inexpensive! Easily erected—easily extended—all styles and sizes, home and commercial models. A lovely and permanent improvement to the home grounds. No rot—no rust—no paint!

Write for FREE Illustrated Booklet
WALDOR GREENHOUSES
DEPT. 2310 SALEM, MASS.

BERKSHIRES For Sale at All Times



See our Herds at the mid-west State Fairs

Balanced Berkshire Farms

Address correspondence to: Lloyd Alexander, Secy. Balanced Berkshire Farms, R. 1, Wooster, Ohio.

THE BEST YOU CAN BUY!
GRAIN & HAY **ELEVATOR**

24 ft. ONLY $235
32 ft. $290
40 ft. $340

MAYRATH
MONMOUTH, ILL.

VETERINARY PRODUCTS DIRECT to YOU

All the latest effective treatments employed by leading veterinarians and herdsmen. *Discounts available on quantity shipments.*

Write for our Dairy Bulletin and Veterinary Catalog.

ANCHOR SERUM CO.
of INDIANA, INC.
INDIANAPOLIS 6, INDIANA

Premium Market Profits With CONRAD "Vig-R-blend" ROUENS

Beautiful mallard colors; 8 to 10 lbs. in 5 months! New, improved market blend of nation's leading prize strain gives more vigor, faster growth, greater size. Quiet, docile; cannot fly—hence more tender, flavorful, more dark, lean meat. Attract wild ducks. Beautify your home with Conrad Rouens—Champions, leading shows. Breeders only, Fall ONLY.

SAVE UP TO 50% in Early Order Fall Breeder Discounts described in 4-page "Vig-R-blend Mating Plan" 15c
"MORE MONEY with Rouens"—16 pages 15c
BOTH valuable guides to greater market profits 25c
HEISDORF & NELSON "Nick Chick" Leghorns
Highest Average Profit Random Sample Tests
CONRAD ROUENS 11500-FQ W. Edgerton Rd. Milwaukee 14, Wisconsin

20 Million Trees a year

Evergreen Seedlings and transplants as low as $16 per thousand. Also Shade and Hardwood Seedlings. 6 to 10 ft. Fruit and Shade trees. For Fall planting list and Christmas Tree Grower's Guide, write to Box 6-I.

MUSSER FORESTS, INC.
INDIANA, PA.

Castleton, Gainesway, and Poplar Hill, sell at Tattersalls in Lexington; a good many of the Indiana farms go to the Indianapolis Speed Sale, though one of the biggest, Two Gaits, consigns to Tattersalls; the huge Hanover Shoe Farm in Pennsylvania sells at Harrisburg. The Bonnie Brae youngsters are sold along with the offerings of other top Ohio farms at the Delaware sale of the "Stars of Tomorrow" conducted by the Ohio Breeders Sales Company late in September every year.

Bill Murray is president of the sales company. Selling race horses, he says, is a snap compared to selling draft animals, even when times were good. "This is a cash business," he says. "There's no horse trading in it anymore. You take your yearlings to the sale and bring home cash."

Bill figures it costs about $1,000 to drop a yearling in the sales ring. A $732 profit per head on 20 head looks pretty tempting, but the average farmer isn't advised to try it.

"A farmer might make some money on a couple of broodmares," he says, "but he has to be willing to study hard and get a good sound knowledge of bloodlines: he has to keep an eye on the tracks to see what's winning and what kind of breeding may be popular a year or two from now. And most of all, he has to like horses—maybe he has to be kind of horsecrazy. Good horsemen are born, not made. It takes more than the profit motive to make a man a success in this game. You'll find all kinds of people in the business. Some of the men who send their mares to our place to be bred are very wealthy. Their mares arrive in the finest vans. Others aren't quite sure where they're going to get the money for the stud fee. They bring their mares in a little old two-wheeled trailer behind the old Ford. But all of them have that passion for a horse."

On the Tracks

The Murrays do not race their own horses, so they are not concerned with the problems of breaking and training and mapping out a campaign every year for a stable of racers.

Racing is done by specialists like Doc McMillen. He operates a public stable with headquarters at the fairgrounds at London, Ohio: that is, he trains horses for a number of owners. A man will go to the yearling sales, buy a nice colt and turn him over to Doc. The colt has been halter broken, that's all.

That fall Doc will take the salesring fat off his new prospect, introduce him to a set of harness and a sulky and teach him how to respond to the bit. Then he'll probably put him up until spring.

Along about February he will start jogging the colt—hitch him to a training cart and trot him slowly the wrong way of the track mile after mile to build wind and muscle.

Eventually comes the day the colt will be asked for speed. He'll be taken out and jogged a few miles as usual, brought back to the barn and rubbed off, given a little rest, then brought back to the track again. In five progressively faster dashes interspersed with rests at the barn he will be worked at speeds from around 2:30 down to about 2:20. When the day comes that he can go his mile in 2:14 or thereabouts he'll be ready to go to the races.

Then comes the race, the climax of months, in some cases even years, of preparation and planning. The horse, with full equipment, is harnessed, hitched to the sulky and led to the track, where his driver is waiting in racing silks. The field lines up Indian file behind the outrider and parades along the outer rail in front of the grandstand: they take a "score," a short dash, down the stretch, come back, "score" again, then circle the track and line up according to their numbers behind the starting gate. The gate is just that—a light metal gate mounted on the rear of a fast car. The car, with starter sitting facing the horses, comes down the stretch, the horses get into their gait and when they reach the starting point, the starter gives the word "go," the gate folds against the side of the car, which speeds to the outer rail, and they're off.

The field immediately swings to the inside rail, drivers steadying their horses and jockeying for position. By the time they reach the back stretch they have fallen in single file behind the pacesetter. Every driver has his stopwatch in hand. As they flash past the quarter pole there's a quick glance at the watch—:32,

Customized

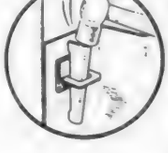
USF STEEL BUILDINGS with Prefab Economy!

CUSTOM LOAFING AND FEEDING BARNS

IMPLEMENT SHED

CATTLE LOAFING SHELTER

New Deluxe **40' CLEAR SPAN RIGID FRAME ALL STEEL BARN**



SINGLE OR MULTIPLE MANY VARIATIONS POSSIBLE

All USF Steel Buildings give you the greatest flexibility in design variation by adapting standard prefabricated units to your exact needs. You can customize at prefab prices. Exclusive Clip-and-Wedge sheet attachment speeds erection . . . eliminates all screws, welding, riveting and hole drilling. WRITE FOR LITERATURE on this complete steel building line.

USF — USS STEEL

UNITED STEEL FABRICATORS, INC.

220 GASCHE STREET • WOOSTER, OHIO

a 2:08 pace: nobody wants to challenge the leader. Around the far turn they go and into the stretch again—these half-mile tracks get you back where you started from in a hurry. A couple of the boys decide now's the time to ask for a little more speed—they've gone the half in 1:06, so there's a brush past the stands and they're into that lower turn again. The pole horse gets rattled when the pack comes to him and makes a break—breaks out of his trot and begins to gallop. (The rules say this does not disqualify if the driver immediately attempts to pull the horse back to its gait and takes to the outside, if there is clearance. He is not permitted to gain by the break. A horse on the break is disqualified if the break occurs on the finish line while a contending horse on the gait is lapped on him.)

They're trotting down the backstretch again, with the three-quarters in 1:39⅗. They come around the last turn, the field swinging wide to challenge the leader. They're looking him in the eye now, the crowd is on its feet roaring encouragement, whips rise and fall, the horses are giving it their all, the morning glories, the pigs, the no-'counts are dogging it. With a flash of color and a pounding of hoofs they go under the wire and the time goes up—2:09⅖, the last quarter in :29⅘. That's harness racing.

CROP DRYER
GRAIN DRYING BIN
SHELLER
CROP DRYING FAN
HOW DRYING DUCTS
AMERICAN
the Complete Line of
CROP DRYING
EQUIPMENT
1. Crop Dryers, 2 models, oil or gas fired.
2. Grain Drying Bin—260 to 435 bu. capacity.
3. Field and Crib Sheller — 2-row capacity, 106 bu. grain tank.
4. Crop Drying Fans—all sizes, large capacity, reversible.
5. Mow and Ear Corn Drying Ducts—low cost, install in a few hours.
6. Aeration System—insure safe grain storage.
7. Screw Conveyors—8' stock sections, assemble any length.
This is the outstanding line of Crop Drying Equipment on the market today. Write, wire or phone for complete information.
AMERICAN CROP DRYING EQUIPMENT COMPANY
CRYSTAL LAKE, ILLINOIS
AERATION SYSTEM
SCREW CONVEYOR

JACUZZI DEEPRIME JET
—World's only self-priming jet water system for deep wells—even to 300 feet. No moving parts below ground. No control valve, frost-proofing or lubrication needed.

JACUZZI MULTI-PRIME
—for shallow wells. Delivers up to 35% more pressure and 20% more water than all similarly rated pumps. Completely self-priming.

JACUZZI AQUAMAT
—low cost automatic jet water system for either shallow or deep wells. Delivers up to 500 gals. per hour. Self-priming. Requires no control valve.

Get the facts! *Before you buy any new pump, read these fact-filled bulletins.*

JACUZZI BROS. INC.
Originator and World Leader in Jet Pumps
4100 Bayless Ave. • St. Louis 23, Mo.

Please send bulletins and name of nearest dealer. Depth to water level at my place is_____feet.

Name_____

Address_____

BE CHOOSEY . . . BUY JACUZZI

THOSE POPULAR CORRIEDALES!

CORRIEDALE RAMS are prepotent, vigorous and virile.

CORRIEDALE EWES lamb easily, are good mothers, and are prolific.

CORRIEDALE LAMBS feed well, dress out well, and produce quality meat.

For literature and sources of stock write:

AMERICAN CORRIEDALE ASSOCIATION, INC.
ROLLO E. SINGLETON, *Secretary*
108 Parkhill Columbia, Missouri

Make your business a pleasure

RAISE CORRIEDALE SHEEP

60 Corriedale Ewes for fall delivery

WOODBINE FARMS
H. H. Walker & Sons
GAMBIER, OHIO

Trailer Mounted for Power Take-off Has traveling feed table and is especially designed for grinding or chopping larger quantities of loose or baled hay and roughage of any kind. Furnished either with or without Trailer Mount and Power Take-off. Both cutter knives and heavy swing hammers—it grinds any feed, green, wet or dry, snapped or ear corn, roughage bundles or baled flakes, with ordinary farm tractor—and no monkey business. Get full information on real honest-to-goodness grinding outfits. Write for complete details.

GOOD SEEDING PAYS!

NEW WESTERN BEAR CAT SEED BED MAKER and SEEDER

Combination spring tooth harrow, sprocket packer, mulcher, and seeder. Pulverizes and packs finest of seed beds, then evenly, accurately sows any seed. All in one operation! Pays for itself in saving seed, especially Alfalfa, Clover, or any Grass Seed, sown mixed or separately from one seed box.
Seed drops ahead of rear roller section and is pressed firmly into soil by both Packer and Mulcher wheels. Leaves surface mulch without grooves. Great help in preventing washing, crusting, and blowing. Holds the moisture. Seeder mounted or removed quickly. Seed Bed Maker and Seeder available as combination, or each separately. Write for full details.

WESTERN LAND ROLLER CO., Dept. FQ-27
Hastings, Nebraska — Manufacturers

NEW FOR STOCKMEN WRITE FOR FREE NASCO CATALOG

Order from this ad on moneyback guarantee. Ask for FREE Catalog of world's largest line of stockmen's and dairymen's supplies . . . hundreds of items you've never seen before!

BE SURE . . . IDENTIFY YOUR COWS
Don't cull good cows, lose identity of pure-bred calves, make errors in breeding and ownership. Use these big numbered brass tags with strong 40" steel chains. **Specify numbers wanted.** Order ZC999, 10 for..... **$12.95** ppd.

CASTRATE. DEHORN. DOCK WITH RUBBER BANDS
Easy, simple and safe. Dehorn and castrate calves. Dock and castrate lambs. Removes horns up to 6" long. To use, just place rubber band. Widely used and recommended. Order ZC232-233, Elastrator with 100 rubber bands, ppd..... **$14.30**

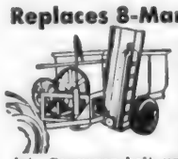
ORDER A HANDY LARIAT
You don't have to be a cowboy to find 100 uses for a good lariat like this. Heavy duty, good quality pure manila 30-ft. rope. Standard honda. Order ZC375, ppd..... **$3.98**

FREE with $10 order. New computer "weights" beef cattle with ordinary measuring tape.

NATIONAL AGRICULTURAL SUPPLY CO., Fort Atkinson 23, Wis.

CATTLEMEN—LOOK!

New Low-Cost Portable Mixer Replaces 8-Man Feeding Crew



Transit-Mixer lets one man, in one hour, do the feeding job of 8 men working all day! Just load Transit-Mixer with feed ingredients or bulk grain, mix them in transit as you drive to the feed lot. Conveyor belt unloads feed automatically as you drive along bunks. Easily controlled from truck cab or tractor seat. Rugged construction, built to last a lifetime. 2000 to 6000-lb. sizes, truck or trailer mounted, for big or small feeders. Amazing low cost, soon pays for itself. If you are still wasting your time and dollars on expensive old-fashioned manual feeding methods, stop and think what a tremendous saving the Davis Transit-Mixer can mean to you. Now—write for free literature and low prices on the Davis Transit-Mixer!

H. C. Davis Sons, Box FG-3, Bonner Springs, Kans.

INTERNATIONAL WHEAT AGREEMENT

(*Continued from page* 43)

provided that other nations were equally willing to set a maximum price on the things Argentina imported. When it was shown that the International Wheat Agreement was not big enough to make such a guarantee, Argentina withdrew.

"The Russians were a different kettle of fish," the negotiator continued. "They wanted to use the agreement to capture a big chunk of the world market. I'll never forget that Russian delegate on the committee. He would march in very formal and stiff, and would sit through the meeting with a perfectly expressionless poker-face. I am absolutely sure he understood every word spoken in English, French, or Spanish, the three official languages, but he wouldn't make a comment until it had all been translated for him into Russian. His position was very simple; the Russians, who normally export around thirty million bushels a year, should be given a quota of seventy-five million bushels. This would mean that a number of nations would have to shift their buying from the country which normally supplied them with wheat and buy at least some of their wheat from the Russians. He bargained the rest of us from a forty million bushel quota we felt he should get up to fifty million, but beyond that we wouldn't budge. So the Russians dropped out."

jari POWER SCYTHE

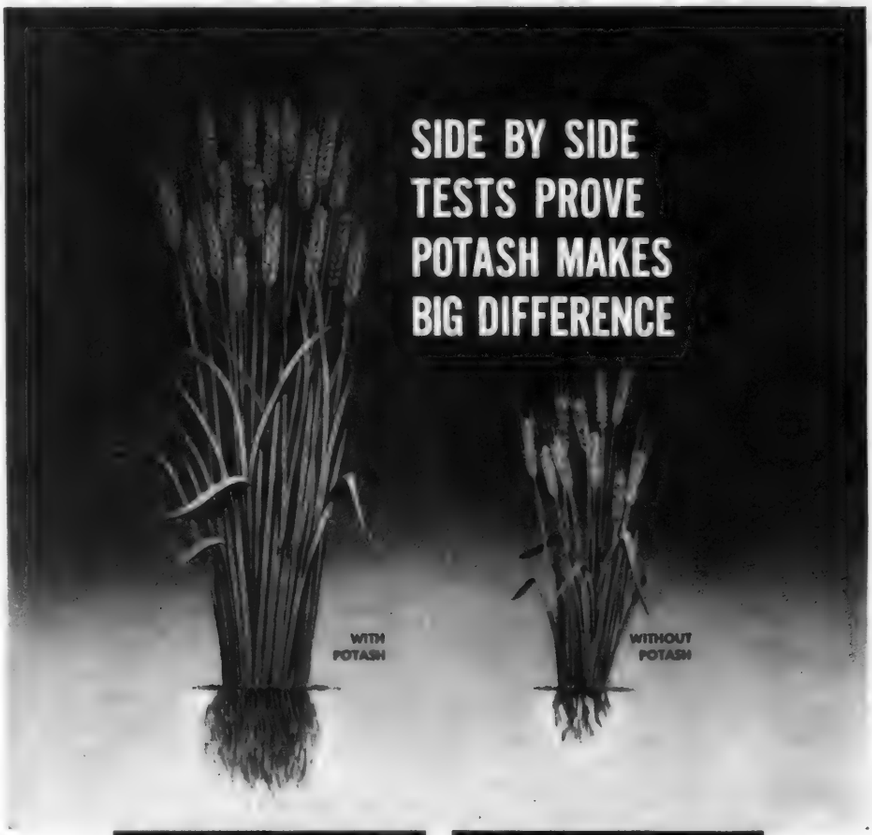
SHEAR MAGIC

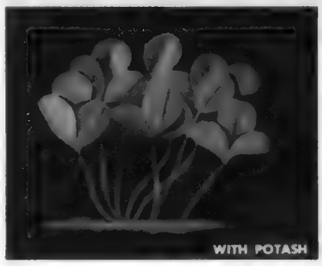
for clearing brush...weeds ...tall grass

Self-propelled Jari, Sr. Power Scythe cuts faster and easier—and with safety. Its efficient 36″ sickle bar shears through dense growth without stalling, does the work of six men with hand scythes. Light in weight, the Jari, Sr. operates over rough terrain, steep slopes and soft ground. Heavy-duty construction, with easy-starting 2-hp engine, ball bearing drive shaft, screw-adjusted knife clips and finger-tip clutch control. Spray attachment available.

Write for details and prices to:

jari PRODUCTS, Inc.
Dept. 2934T, Minneapolis 8, Minnesota





Double cropping is doubly profitable when you don't skimp on Potash

Generous fall fertilization of small grain to be seeded down to legumes is sound farm management. It pays off in bumper yields of grain, hay, and pasture crops. This is especially true when you use liberal amounts of fertilizer *high in Potash.*

Winter wheat responds to Potash with healthier, more vigorous roots; less winter-killing; good, plump kernels; sturdier stalks and reduced lodging. Because legumes are greedy feeders on Potash, they need plenty to get off to a good start. Your local agricultural adviser can help you determine how much Potash both crops need. See him soon.

Send for this Free Booklet. It shows how proper fall fertilization helps to get better stands of winter wheat. For your copy, write to address below.

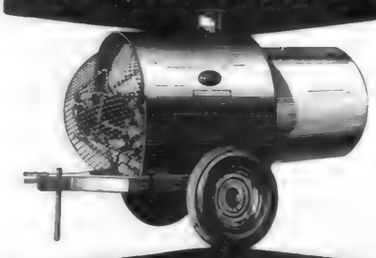
K 2 O

Symbol for bigger yields . . . bigger profits

AMERICAN POTASH INSTITUTE, INC.
Dept. W-25, 1102 Sixteenth Street, N. W., Washington 6, D. C.

MEMBER COMPANIES: American Potash & Chemical Corporation • Duval Sulphur & Potash Company • Potash Company of America • Southwest Potash Corporation • United States Potash Company

Hartzell Power Speeds Drying...



Saves You Money

A Hartzell crop drier packs the punch for a fast drying job. The powerful Hartzell unit forces the heated air into the heart of your batch drier, bin or mow. And that's what it takes to insure fast, complete drying. Faster drying saves time, saves fuel. Hartzell power puts money in your pocket.

Compact. Sturdy. Easily portable. Completely automatic. Three sizes — 3, 5 and 7½ h.p. And the Hartzell drier comes as a complete package. No extras to buy. See your dealer or write today for details.

HARTZELL propeller fan co.

Div. of Courtz Hitts Corp

Agricultural Division Dept. F PIQUA, OHIO

FOR THE BEST IN PORTABLE IRRIGATION

...better insist on

Patented, Streamlined McDowell IRRIGATION COUPLINGS!

The First, and Finest Patented Gasket-Coil Pressure Lock Design

In this unique design, water pressure provides a watertight seal automatically —at both high or low pressures. No tools required. No hooks, latches or gadgets. Faster and easier to use, the McDowell Coupling saves time and money.

Free Planning Service!

Free Booklet!

---For Details — MAIL COUPON TODAY---

Name_____

Address_____

McDOWELL MANUFACTURING CO.

PITTSBURGH 9, PA.

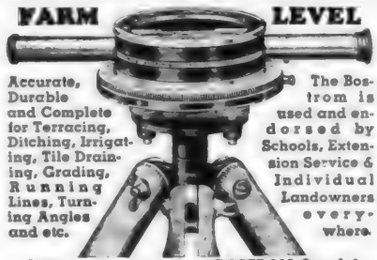
The first agreement assigned quotas which changed slightly from year to year. In the final year these quotas were: United States 253,127,712 bushels, Canada 235,000,019, Australia 88,700,014, and France 4,088,950. In the second agreement, which is now in effect, the quotas are: United States 193,652,000, Canada 150,842,000, Australia 44,356,000, and France 339,000. The overall amount for the exporting countries is lower because the United Kingdom dropped out of the 1953 agreement. The English did this because they objected to the maximum price. They bargained stiffly for a maximum of $2.00, but the exporters, who had been selling their wheat for considerably below world market prices for three years under the old agreement, held out for $2.05. When the show-down came, the exporters were able to write their figure into the agreement and the United Kingdom dropped out of the IWA.

"I have always been puzzled at the logic of the English," a delegate for one of the importing nations said in a soft Latin accent. "All during the conferences the British delegate bargained for a low *maximum* price and paid very little attention to the minimum price. The reason this puzzles me is that the importing nation doesn't have to take a single bushel of wheat at the maximum price if she doesn't want to, but she *must* buy her whole quota of wheat at the minimum price if the demand is made. So, since England bargained mainly about the maximum price she must have felt that this was the price she would be paying for her wheat—that is, that the world price was going to remain high and that this was going to be the International Wheat Agreement bargain price. Yet," he shrugged his shoulders, "when she didn't achieve her two dollar maximum, she withdrew."

Though the United Kingdom dropped out of the agreement, the secretariat of the International Wheat Council, which administers the agreement, is located in London in the noisy, bustling section near Westminister Bridge, close enough to the river to hear the deep bellow of the freighter horns as they work their way into dock to unload grain for this, the world's largest wheat market. Here are kept the records of sales and purchases under the agreement and here the occasional dispute is handled.

Each nation meets its obligations under the agreement in its own way. In some nations the government does all of the buying and selling outside the country. In others, private enterprise does most or all of it. In the United States we have our own peculiar problems to face in functioning under the agreement. The big bulk of our wheat is sold by private exporters. But, since we maintain a high domestic price on wheat through our price support program, the exporters can't possibly go out and buy wheat on the open market and compete in inter-

BOSTROM IMPROVED FARM LEVEL



Accurate, Durable and Complete for Terracing, Ditching, Irrigating, Tile Draining, Grading, Running Lines, Turning Angles and etc.

The Bostrom is used and endorsed by Schools, Extension Service & Individual Landowners everywhere.

Anyone can operate a BOSTROM Level by following the simple direction booklet included with each instrument. We manufacture 3 models; Farm Level, Contractors Level, Convertible Level. All BOSTROM Levels are sold on the guarantee of satisfaction or money back. WRITE TODAY for literature, prices and name of our distributor near you.

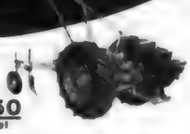
Bostrom-Brady Manufacturing Co.

534 Stonewall St., S.W. ATLANTA, GA

Easy Money For You! Sell the Wheelhorse! Dealerships open. Write today

Wheelhorse

Makes gardening easier — adds to your leisure!



FREE Catalog! Send Postcard today!

Only $149.50 2 h.p. model

You'll buy a Wheelhorse when you compare price... construction...design and ease of handling! Easy to change attachments help you plow, cultivate, harrow, haul, spray, mow, saw, cut, roll, plow snow. Guaranteed! 2, 2½, 3 and 3½ h.p. models. Write!

POND COMPANY

2643-Q 9 Dixie Way North, South Bend 17, Ind.

CRIB PLANS FREE!

Send for FREE crib blueprints with list of all materials. Also Elevator catalog—showing 8 styles.

MEYER FARM ELEVATORS CUP AND PORTABLE

Simplest, strongest made. 3 sturdy flared 17" to 22". Heavy-duty—Portables, 10" to 18" widths, tops low cost. Famous Meyer features. Write today. State whether interested in *Bucket* or *Portable*.

MEYER MFG. CO.

BOX 752 MORTON, ILLINOIS

Makers of Famous Meyer Elevators

"We sure are in demand"

A flock of Hampshire Sheep is the ideal diversified live stock program for the cattle, hog and poultry breeder.

For Breeders List

AMERICAN HAMPSHIRE SHEEP ASSOC.

72-Q Woodland Ave. Detroit, Mich.

Join the ranks of Successful Breeders Using—

BREEDER-ADE® OIL

...for surer pregnancies...for better young

Follow the lead of successful breeders in all parts of the country—feed Breeder-ADE Oil before mating. This blend of carrot oil, wheat germ oil and "D" activated animal sterol successfully combats nutritional sterility. 4 oz. only $1.80 postpaid!

Put Breeder-ADE Oil in feed of horses, cattle, swine, dogs, poultry and fur-bearers. Dosage varies according to size of animal—follow simple directions in Bulletin 23 sent in each package. Orders shipped same day received. Send check or money order for $1.80. Money back if not satisfied. Breeders who have tried it reorder year after year.

NUTRITIONAL RESEARCH ASSOCIATES

SOUTH WHITLEY, INDIANA

Department A-3, ®Trade Mark

national trade. Therefore, we pay for our high domestic prices first through our price support program and once again by subsidizing the exporter to make up the difference between the domestic price and the international price.

During the past year our price support program, which averaged $2.21 a bushel, kept the price of wheat on the open market considerably higher than the highest price under the agreement which was the maximum of $2.05. In order to make it possible for exporters to sell wheat on the international market, we have worked out a program of subsidizing the export wheat. Each week day at 3:30 p. m. the Department of Agriculture announces the subsidy they will be willing to pay on wheat or flour. These subsidy figures which are rushed out over the Dow-Jones tickers shortly after the grain markets close, are given for different locations in the United States, Gulf Coast, East Coast, West Coast, and for the destination, which is broken down into Latin America and the West Indies and all other destinations. One afternoon a month or two ago, for example, the Department issued its routine announcement stating that they would pay an export payment on Gulf Coast shipping to all destinations except Latin America and the West Indies of 36 cents a bushel on wheat and $1.62 a hundredweight on flour. For Latin America and the West Indies the subsidy was 34 cents and $1.57. In the same announcement the Department said they would pay 41 cents a bushel and $1.72 a hundredweight of flour for all destinations from the East Coast and for all destinations from the West Coast the subsidy was 64 cents for wheat and $2.00 for flour. A secret formula is used to figure this daily subsidy price which takes into account the type of wheat being moved from the various parts of the country, the competitive price in the United States, the world price, shipping costs as compared with the costs of shipping wheat from Port Arthur and Fort William, Canada, and other factors.

When an American exporter ships wheat under the agreement, the sale is recorded and the amount deducted from the U.S. quota and credited to the buyer nation's quota, the exporter presents a sale document and proof of exportation to the Department of Agriculture showing the date and size of the transaction and the subsidy is paid.

When exporters are selling wheat on the free world market, they buy from the Commodity Credit Corporation at a reduced price—which, in effect, is a different kind of subsidy. Today, with the world price and the agreement price fluctuating together between the maximum and the minimum the two subsidies are the same.

Critics of the wheat agreement point to this subsidy program as an example of their claim that the agreement is costing us money and interfering with the free market. "When world prices are

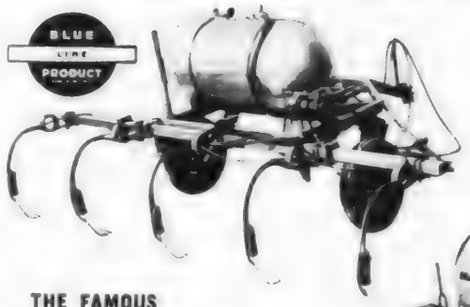
BLUE

Brings You the way to

BETTER CROPS – BIGGER PROFIT

with Farm Tested

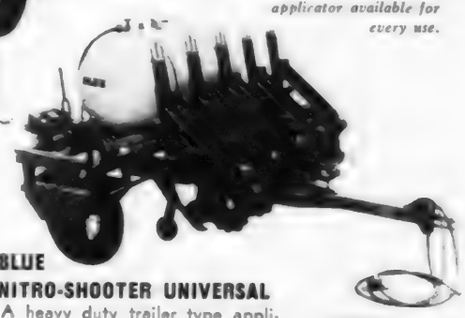
Anhydrous Ammonia Equipment



NEW BLUE SERIES 10 ANHYDROUS AMMONIA FERTILIZER DISTRIBUTOR

This trailer type applicator rig is designed for both row crop and broadcast application.

There is a BLUE trailer and tractor mounted anhydrous ammonia applicator available for every use.



THE FAMOUS BLUE METERING PUMP—

Assuring trouble free, safe, accurate application. Pounds per acre are determined by pump setting, not tractor speed.

BLUE NITRO-SHOOTER UNIVERSAL

A heavy duty trailer type applicator for application of Anhydrous under all field conditions to both row crops and pasture.

BLUE
World's Largest Manufacturer of Anhydrous Ammonia Equipment

Send for Complete Information

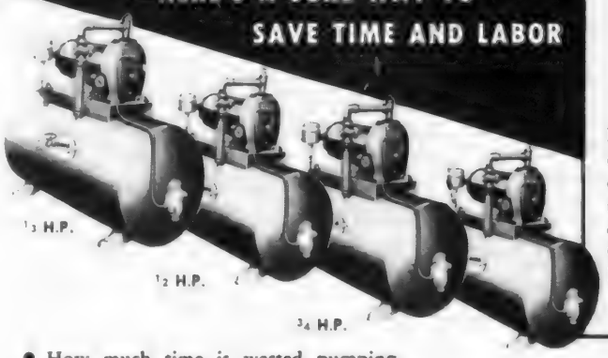
JOHN BLUE COMPANY, INC.

Huntsville, Alabama

Dependable Farm Equipment since 1886

Plenty of Water — Plenty of Pressure

—HERE'S A SURE WAY TO SAVE TIME AND LABOR



BARNES

"PACKAGED LINE" FOR SHALLOW OR DEEP WELL SERVICE

High quality. High-capacity. Packaged for easy, low-cost installation. Works on either deep or shallow wells. Convertible without buying extras.

• How much time is wasted pumping, carrying, walking, waiting or hauling water to keep your stock tanks filled? Take a look at your water system! Is it ample? Obsolete? Wouldn't a modern, high-capacity system — or a water system on the "second" farm where you feed — let you handle more stock without more labor? At the least, wouldn't it let you handle your present head and cut your costs? Either way, you can take a big slice from your expenses and increase the money you keep from the money you get.

Mail the coupon below for interesting and helpful information on the latest in water systems and how to get the most from them.

Barnes Manufacturing Co.

Mansfield, Ohio **Oakland 21, Calif.**

Barnes MANUFACTURING CO.

Most Complete Line of Water Systems on the Market

232 Models to Choose from — Capacities up to 10,500 gph. Depths to 740 ft.

BARNES MANUFACTURING CO.,
673 N. Main St., Mansfield, Ohio

☐ Please send me, free of charge, complete information on your water systems.

☐ I would like the details of your plan for purchasing a Barnes Water System with no money down and monthly payments.

*Name*_____

*Address*_____

*City*_____ *State*_____

FQ 1054

NEW LIFE FOR "SICK" PLANTS

cures chlorosis
stimulates growth *regreens leaves* *restores bloom*
speeds crop *improves quality* *increases yield*

CHEMISTRY OF CHELATION

Versen-OL Iron Chelate unlocks the door to a new Agricultural Chemistry. It controls the trace metals which regulate the enzymes that affect the growth-factor of plant life. Agriculture Experiment Station and private research show that it works in acid, alkaline and calcareous soils.

AMAZING RESULTS

Results already obtained with Versene Chelates over the last 3 years have been so remarkable that we have decided to offer it to "professional" growers for experiment. Try it now on citrus, flowers, sugar cane, sorghum, alfalfa, corn, potatoes, tomatoes, peanuts, gardenias, azalea, roses, blueberries, hibiscus, sunflowers, avocados, soybeans, lawns, grass, golf greens, ornamentals and many other crops.

ORDER TODAY

The soluble Versen-OL Iron Chelate *Concentrate* is available only in 1 lb. tins, enough to treat up to 3000 sq. ft. of soil (when dissolved in water). Send check or M.O. for $2.98. Postpaid. Complete instructions. P.O. Box 311.

VERSENES INCORPORATED
(Formerly Bersworth Chemical Co.)
FRAMINGHAM, MASS.

RAISING GAME BIRDS

A Coming Business OPPORTUNITY

For the person who wants a sound business of his own, with out-of-doors and sporting appeal, game bird farming offers a real opportunity.

Today, there is an increasing demand for confinement-reared pheasants, quail, chukars, and guinea fowl for these three markets:

1. **High-class meat production.**
2. **Growing birds for restocking for state conservation departments and private game bird preserves.**
3. **Supplying game bird eggs or chicks for breeding stock.**

If you're interested in this promising business opportunity, as a part-time or full-time venture, fill out the coupon for Purina's FREE GAME BIRD BOOK. It's written by the leading manufacturer of commercial feeds for poultry and livestock and contains a wealth of information.

Mr. Albert H. Leonard,
Game Bird Chow Sales
Ralston Purina Company
2108 Checkerboard Square, St. Louis 2, Mo.

Please send me a free copy of Purina's New Game Bird Book. (SP 2809)

Name.....

Address.....

City.....*State*.....

high," they say, "the agreement costs us money in two ways. First, we actually lay out the cash subsidy on every bushel of grain we send out to meet our commitments under the agreement and, second, guaranteeing a bargain price on half the wheat that moves into international trade holds down the price of the wheat on the free market so that the subsidy we pay exporters on *this* market is higher than it would be if the entire market were free."

Supporters of the agreement counter, "The whole purpose of the agreement is to bring some stability to the world wheat trade. Through the agreement, importing nations have been assured at least a part of their needs at reasonable prices—and today when the free world is fighting for its survival, bread is a real weapon. Then too, the assurance of supplies of wheat is having some effect in broadening the market. The demand for wheat has always been very inelastic, but now, because they are assured a steady supply at a reasonable price, Japan and India and some of the other traditionally rice eating countries are trying to change the food habits of their people and use more wheat. This program is also being pushed by the American flour millers who are creating special types of wheat flour to compete with rice. If they are successful it will mean a bigger, steadier market.

"Though the domestic price support program certainly has a greater influence on the price the farmer gets for his wheat, the International Wheat Agreement also helps support that price. Each year of the agreement we have been moving out wheat that was grown on at least ten million acres. Just think what effect it would have on our acreage allotments and on the price support program if we had this great mass of wheat added to our surplus problem today. And, finally, if the world price should drop—and we all know that it can—we are guaranteed a market for half of our export wheat at *above* world price."

Just how strong is this guarantee? The agreement has an escape clause in it which permits importing countries to get out of their obligation if they can show that their monetary reserves are endangered—just as there is an out for exporting countries in the event of crop failure.

If the world wheat price should drop below the minimum price under the agreement, would the importing nations be able to fulfill their contract and buy their quota of wheat? The answer is yes or no depending on the circumstances. If the price dips but slightly below the world price, the agreement will undoubtedly stand. If, however, the price should drop sharply in the immediate future and remain substantially below the world price for some time, the agreement would collapse. Too many of the nations would have to use the escape clause and go back to the open market.

Take a small country like Costa Rica, for example. Wheat would be about as

FERNDALE FARMS

PURE-BRED HAMPSHIRE HOGS AND ABERDEEN-ANGUS CATTLE
BOARS AND GILTS FOR SALE AT ALL TIMES

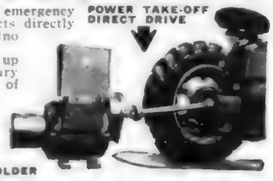
Grand Champion carcass at 1953 Ohio Barrow Show was produced and shown by us. Also the 1953 Grand Champion Boar at the Ohio and Indiana State Fairs was owned and exhibited by:

FERNDALE FARMS
Arthur B. Evans, Box 50 - - - Cedarville, Ohio
One of the oldest and Largest Herds in America

NEW! TRACTOR DIRECT POWER TAKE-OFF EMERGENCY GENERATOR

ENDS BLACKOUTS WHEN HI-LINES FAIL!
LOW-COST PROTECTION • QUICKLY ATTACHED!

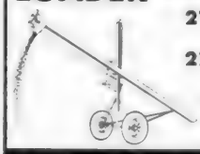
For the first time—an emergency generator that connects directly to power take-off (no belts). 110/220 Volts A.C. up to 25 KW, stationary or trailer. Capable of continuous duty beyond power lines. Also belt-driven models, complete power units, generators to 300 KW.



FREE FOLDER
Katolight CORPORATION
Box 491-89 Mankato, Minnesota

Pays for itself the 1st day!

AUGER LOADER 16 ft. ONLY $69
21 ft. $139
27 ft. $169



Truck, standard, and hi-lift models

MAYRATH
DODGE CITY, KANSAS

FARM MANAGEMENT SINCE 1914

Services to Farm Owners Include:

SURVEYS REORGANIZATION BUDGETS
APPRAISALS ADVISORY ACCOUNTING
COMPLETE MANAGEMENT
FARM INCOME TAX RETURNS
PUREBRED LIVESTOCK ON COMMISSION
LIVESTOCK CONSULTANT
AGRICULTURAL ENGINEERING CONSULTANT

BURLINGAME, FIELD, PIERCE & BROWNE, INC.

714 Citizens Bldg. West Palm Beach, Florida Telephone 3-6556
45 West 45th Street New York 36, N. Y. JUdson 2-1948
158 Main Street Putnam, Conn. Putnam 8-6866

Write or Telephone for details

DON'T LET RUSTY WATER RUIN WASHDAY!

SEND FOR THIS BOOKLET

This booklet shows how you can have crystal-clear, palatable water in your home. Diamond Iron Removal Filters take out all iron and other foreign matter. Costs little — worth a lot.

Oshkosh Filter & Softener Co.
Oshkosh, Wisconsin

ADVERTISERS' INDEX • AUTUMN 1954

Your Guide to Quality Merchandise and Service

Farm Quarterly, 22 East 12th St., Cincinnati 10, Ohio

Agricultural Labs 110
Allied Mills, Inc. 5
Allis Chalmers Co. 27
Aluminum Co. of America (Irrigation) 76
Aluminum Co. of America (Roofing) 77
American Agricultural Chemical Co. 93
American Berkshire 99
American Cheviot Sheep 130
American Corriesdale Ass'n 134
American Crop Drying 134
American Guernsey Cattle 127
American Hampshire Sheep Association 136
American Jersey Cattle Club 100
American Milking Shorthorn Society 122
American Potash Institute 135
American Shorthorn Breeders 104
American Society of Farm Managers 128
American Tire Machinery, Inc. 7
W. R. Ames Co. 130
Anchor Serum Co. of Ind. 132
Ariens Co. 115

Babson Bros. Co. 2
Balanced Berkshire Farms 132
Barnes Mfg. Co. 137
Behlen Mfg. Co. 118
C. S. Bell Co. 110
Belsaw Machinery Co. 122
Black, Sivals & Bryson, Inc. 79
The John Blue Co. 137
Bostrom-Brady Mfg. Co 136
N. P. Bowsher Co., Inc. 128
Boyt Harness Co. 100
Bridgeport Implement Works 124
Brillion Iron Works, Inc. 84
Burlingame, Field, Pierce & Browne, Inc. 138
Butler Mfg. Co. 18, 103

Campbell Hausfeld Co. 110
J. I. Case Co. 9
Caterpillar Tractor 14
Celina Mfg. Co. 106
Champion Corp. 117
Choremaster Div. 130
Clay Equipment Co. 109, 111
Clayton & Lambert Co. 83
Cobey Corp. 113
Conner Prairie Farms 123
Conrad, Fremont John 132
Construction Machinery Co. 127
Craine, Inc. 90
Cushman Motor Works 110

Danuser Machine Co. 90
H. C. Davis & Sons 124, 134
Deere & Co. 6
Deming Pump Co. 112
Doane Agricultural Service, Inc. 112, 140
Dow Chemical Co. 96
Duplex Mill & Mfg. Co. 126

Early & Daniel Co. 114
Eaton Mfg. Co. 15
Edwards Laboratory 106
Eversman Mfg. Co. 116
Everyday Poultry Farm 98
Ezee Flow Corp. 16

Fairbanks Morse 8
Farm Book Store 120
Farmer Feeder Co., Inc. 115
Farmhand Co. 78
Farm Tools, Inc. 124
Ferndale Farms 138
Fitchburg Eng. Corp. 117
Ford Tractor & Implement 19
Ford Truck Division 74, 75
Fox River Tractor Co. 80
Fuerst Bros. & Co., Ltd. 107

Gehl Bros. Mfg. Co. 101
General Electric Co. 98
The B. F. Goodrich Co. 12
The Goodyear Tire & Rubber Co., Inc. ..... Second Cover
Gormann-Rupp Co. 129, 140
Gravely Motor Plow 125

Hahn, Inc. 122
Hardie Mfg. Co. 125
Edwin Harrington 124
Hartzell Propeller Fan Co. 136
Heil Corp. 94
Helix Corp. 131
John W. Hobbs Corp. 99
Holstein Friesian Ass'n of America 23
Hotchkiss Steel Products 128

Industrial Molasses Corp. 132
International Harvester Co. 1
International Minerals & Chemical Corp. 122

Jacuzzi Pump Co. 134
James Mfg. Co. 88
Jari Products 135

Katolight Co. 138
Kelsey-Hayes Wheel Co. 4
King-Wyse, Inc. 122

LML Eng. & Mfg. Corp. 104
Lakeside Dairy Farms 124
Lantz Mfg. Co., Inc. 108
Lazy "L" Ranch 123
Lederle Laboratories 85
Henry Leuthardt Nursery 122
Lilliston Implement Co. 118
Loudon Machinery Co. 79

MacKensen Bird Farm 131
Marlow Pumps 22
Martin Steel Corp. Third Cover
Massey Harris Co. 13
J. R. Mayner & Co. 113
Mayrath, Inc. 130, 132, 138
McDowell Mfg. Co. 136
Merchants Creamery 126
The Meyer Mfg. Co. 130, 136
Midland Co. 108
Minneapolis Moline Co. Back Cover
Mojonnier Bros. Co. 102
Moore Mfg. Co. 116
Moulton Irrigation Co. 140
Musser Forrest Co. 132

National Agricultural Supply Co. 134
National Band & Tag Co. 126
National Cooperatives 108
National Rainbird Sales & Eng. Corp. 114
New Holland Machine Co. 91
New Idea Div. Avco Mfg. Corp. 24, 25
Nitrogen Div. Allied Chemical & Dye Corp. 97
Nutritional Research Ass'n, Inc. 136
Nut Tree Nurseries 124

D. W. Onan & Sons, Inc. 82
Opekasit, Inc. 106
Oshkosh Filter & Softener 138

Papec Machine Co. 22
Joe Parks & Sons 116
Peirson-Moore Co., Inc. 104
Perfect Circle Corp. 10
Pioneer Hi-Bred Corn Co. 20
Plastex Pipe & Ext. Co. 110
The Pond Co. 136
Potash Rock Co. of America 105

Ralston Purina Co. 138
Rebo Mfg. Co., Inc. 90
Reynolds Metals Co. (Irrigation) 11
Reynolds Metals Co. (Building) 87
Rilco Products Co. 139
Roto-Hoe & Sprayer Co. 131
Rototiller, Inc. 131

Safgard Div. 126
Scott's Farm Seed Co. 90
Jos. E. Seagram & Sons, Inc. 3
Seaman Motors, Inc. 99
Security Mfg. & Contracting Co. 129
Sheppard Diesel 86
Shur-Rane Irrigation Corp. 119
Sioux Steel Co. 121
Skinner Irrigation Co. 92
Smith Agri. Chemical Co. 92
E. R. Squibb & Sons 26
Standard Steel Mfg. Co. 123
Sudbury Laboratories 21

Tiger Tractor 112
Tokheim Oil Tank & Pump Co. 98

U. S. Steel Co. Roofing 81
United Steel Fabricators 133

Versenes, Inc. 138
Vickers, Inc. 17
Jos. A. Vogel Co. 90

Waldor Green Houses 132
R. M. Wade & Co. 132
Western Land Roller 134
Westcoast Lumbermans Assoc. 126
Westinghouse Electric Co. 89
Whitacre Industries 129
Wisconsin Motor Corp. 102
Woodbine Farms 134
Wood Products Co. 131
Wood's Rotary Cutters & Mowers 116
Wyeth, Inc. 95

Yardley Plastics Co. 107

Zonolite Co. 128

Advertising Offices: EASTERN OFFICE, Harold C. Weltner, 38 W. 53rd, New York 19, N. Y.; MIDWEST OFFICE, B. A. Rosenthal, 333 North Michigan Blvd., Chicago 1, Ill.; DETROIT, Waldo E. Fellows, Stephenson Building; WEST COAST OFFICE, Kerr & Gillmann, 3038 West Beverly Blvd.; Los Angeles 4, Cal.; ADVERTISING MANAGER, Harry Dunnohew, 22 East 12th St., Cincinnati, Ohio. Publisher: Automobile Digest Publishing Corp., Aron M. Mathieu, Vice President. Member A.B.C.

"I just sold myself!"

"Last year, when I needed a machine shed," says Ralph Limback, Corder, Mo., "my experience with the Rilco barn I built five years ago was all the 'sales talk' needed. I knew for sure that a Rilco building would be stronger and cheaper to construct than any other kind."

Ralph Limback's machine shed is a Rilco Type 55, 36' x 60'. Like his barn and all other Rilco buildings, it has no interior posts. That means 100% clear space inside, for fast, easy handling of farm machinery—plus tremendous strength, to withstand the heavy wind and snow loads.

*Price based on first quality materials, and will vary according to locality.

"I shopped for price!"

"In building our 40' x 70' feeder barn, I shopped for price, appearance and strength," says Elmer Larson, Amboy, Minnesota. "I am well satisfied and continue to get compliments on my Rilco barn. I'm happy I got the best buy." *Finished cost* of any Rilco barn is amazingly low, because rafters are drilled for connectors and ready for erection when delivered. All Rilco rafters are laminated from finish grade, kiln dried Douglas Fir. A set for the average barn goes up in less than half a day with a five man crew.

*Price based on first quality materials, and will vary according to locality.

For your protection and convenience, sold only through your local lumber dealer.

RILCO GLUED LAMINATED RAFTERS

RILCO LAMINATED PRODUCTS, Inc.
2508 First National Bank Bldg., St. Paul 1, Minn.

● Please send new free Rilco Barn Catalog and information on following farm buildings:

☐ Two-Story Barns ☐ Machine Sheds
☐ One-Story Barns ☐ Hog and Poultry Houses

Name_____

Address_____

Town_____ State_____

profitable a crop on the rain swept coastal plain or on the tropical mountain slopes as coffee trees would be in the greenhouses that fringe our cities. Yet, Costa Ricans are a wheat eating people and have signed up for 1,286,030 bushels of wheat a year. If this small country had to start subsidizing the import of this wheat at anywhere near the amount we have regularly been subsidizing export, the strain on the national budget would be too great and it might be obliged to request relief from the burden.

If the world wheat prices dropped well below the minimum price, but did not do so until toward the end of the contract period in 1956, the agreement would probably survive. In this case the importing nations would be able to bring pressure on the exporting nations to bring the maximum and minimum prices down in line with world prices for the next agreement and hold on as best they could for the rest of the current agreement.

If the International Wheat Agreement survives a test of the lower price range as well as it has of the upper prices, we can expect to see this type arrangement used for stabilizing other branches of world trade. Already it has served as a starting point for the negotiating of an international sugar agreement and has contributed valuable experience in our handling of the international tin agreement.

How Digest advice "pays off"

Mr. T. J. White of Eolia, Mo., writes us:

"In the Fall of 1952 things were looking pretty black for the hog business. I had five gilts that I was planning to get rid of at $35 a head. The Digest said to hold gilts and farrow early and so I decided to take its advice. The gilts farrowed early in March and I sold $2,050.00 worth of pigs off them at $26.35 a hundred. Today those gilts are worth $65.00 apiece. That decision made me some money when I needed it the worst way. This letter is to say thanks—and keep my reports coming."

His experience shows how money can be made by following the practical advice of the

DOANE AGRICULTURAL DIGEST

We have many letters from subscribers telling how the Digest made or saved them money. Similar advice is given on Cattle, Corn, Soybeans, Cotton, Wheat, Oats, Poultry, Tobacco and other agricultural products.

Would you like to know what advice the Digest is giving clients today? Then send for

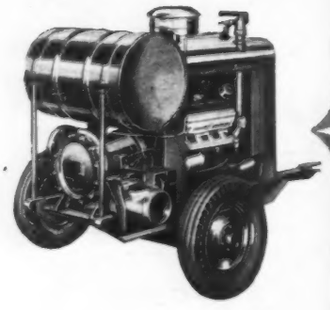
FREE SAMPLE REPORTS

and see how the Digest can help you make more money.

DOANE AGRICULTURAL SERVICE, INC.

Box 245, 5142 Delmar Blvd. St. Louis 8, Mo.

COMPARE *Irrigation* PUMPS!



Available in many sizes. Air-cooled engines and water-cooled engines. G P M varies with lbs. pressure. Ratings from 80 to 3000 GPM. Pressure from 75 to 150 lbs.

WEIGH THESE POINTS BEFORE YOU BUY----

COMPARE — Gorman-Rupp pumps with all other makes and their performance under field conditions . . .

EXCLUSIVE! — Gorman-Rupp Firsts! . . .

★ **CHECK VALVE** (lever control) — Standard equipment on pump discharge. No gate valve needed. Valve threaded to receive 6" pipe.

★ **WEAR RING** — Renewable, surrounds impeller eye.

★ **SHAFT SEAL** — Located on suction side under vacuum. Lubricated by compression grease cup.

★ **END PLATE** — Removable, gives easy accessibility to impeller and shaft seal without disturbing pipe connections.

And! with Gorman-Rupp you get a complete irrigation pump package: pump, engine, exhaust priming device, strainer – ready to work.

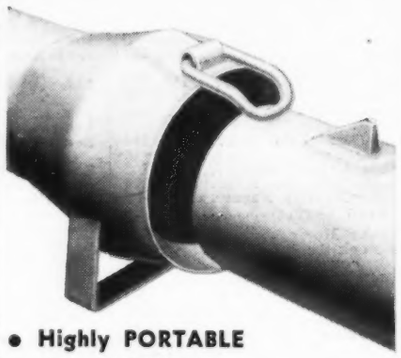
GORMAN-RUPP IRRIGATION PUMPS

GORMAN-RUPP ORIGINATES — OTHERS IMITATE

THE GORMAN-RUPP COMPANY - - - MANSFIELD, OHIO

MOULTON . . .

for BETTER IRRIGATION!



- **Highly PORTABLE**
- **More FLEXIBLE**
- **Smaller INVESTMENT**

The Moulton Irrigation system has been developed through many years of actual engineering experience solving farmers' irrigation problems all over the world. Moulton's patented quick coupler affords complete flexibility, portability and trouble free gasket seal; even under extreme conditions, Moulton's patented locking link permits pipe to be coupled or uncoupled by using centrally located carrying handles.

A Moulton system designed for any size farm provides maximum efficiency, portability, flexibility of operation with a smaller investment. A complete system, from one source: aluminum portable pipe and fittings, steel portable pipe and fittings, pumps, power units, sprinklers, Moulton wheel move systems plus service, quick delivery and installation from one of our two plants.

Write for Information

MOULTON IRRIGATION CO.

Diehlstadt, Mo.
Withrow, Minn. — Dept. FS-3

with buildings that build profits

Grandpa's big red barn seemed great stuff in its day . . . but we know better now. With operating costs climbing and competition ever keener, profitable farming today demands the most efficient facilities.

That's why Martin Steel-Bilt Buildings belong in *your* farming picture. For these sturdy structures offer far more than just storage and shelter. They're basic farm equipment—developed, designed and engineered by agricultural specialists—to help you make the most of every crop you harvest, every head of stock you raise.

There's the famous Haymaker that provides "pasture fresh" feed throughout the year . . . to promote thriftiest milk and meat production. The same holds good for the unique, self-feeding Haymaker and the multi-featured Martin Silo. There are corn cribs and grain bins adaptable for crop drying; corn-saving slat-walled cribs and labor-saving stanchion barns; arch-type buildings—all completely fireproof, ratproof and weatherproof—all built by Martin to outlast your longest estimate. *All profit-builders you can't afford to overlook.* Mail coupon for the full facts!

FREE ILLUSTRATED FOLDERS
. . . SEND COUPON TODAY!

Martin Steel-Bilt Buildings are keyed to the needs of modern farm practices—permanently beautiful and efficient—profit-making equipment that pays for itself many times over in labor savings alone.

MARTIN STEEL PRODUCTS CORPORATION
1903 Longview Ave., Mansfield, Ohio
Send Free Illustrated Folders as Checked:

- ☐ HAYMAKERS
- ☐ SILOS
- ☐ CORN STORAGE
- ☐ GRAIN STORAGE
- ☐ BARNS AND ARCH BUILDINGS

NAME_____

STREET OR R.F.D._____

TOWN_____

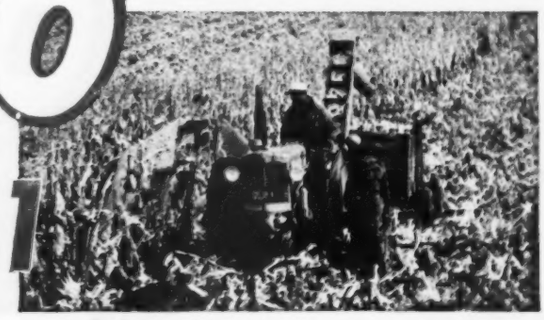
STATE_____

6 WAYS to make more corn money

Now, get tomorrow's FASTER, LOWER-COST HUSKING with the

MINNEAPOLIS MOLINE MODERN MACHINERY HUSKOR

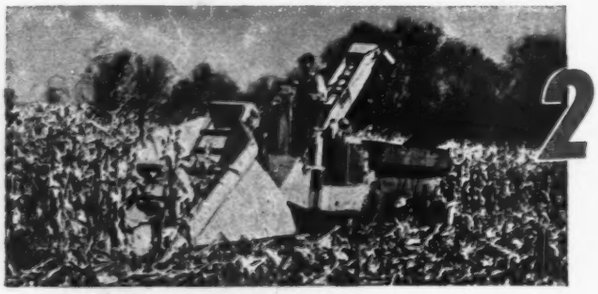
that fits YOUR farm!



IMPROVED MM TWO-ROW HUSKOR

Proved and improved! This popular MM pull-behind 2-Row Huskor is packed with new MM advantages that save time, work and corn. Six gathering chains, large-capacity corn saver, dual-drive husking bed, belt-drive cleaning fan, and full Uni-Matic control of snapping assembly are outstanding features. Longer picking rolls and 12 new sectional type metal and rubber husking rolls handle your heaviest crops.

You can demand—and *get*—a *double pay-off* for your summer's work when you harvest your corn with an MM Huskor. *First*, Minneapolis-Moline gives you new design advantages that help you get all the crop you raise for real *bonus* yields . . . machines that deliver *clean* ears, easier to store and feed, worth more in cash. *Second*, all SIX MM corn-harvesting machines give you the speed and economy that let you get your crop in *faster*, *easier*, at *lowest* possible cost. This year, *gain* with the bonus values that make MM corn Shellers the world's leading sellers, that make MM Huskors and the Picker-Sheller preferred equipment in so many fields. Read the facts below. Make more money off *your* fields, off *your* corn crop.



MM UNI-HUSKOR

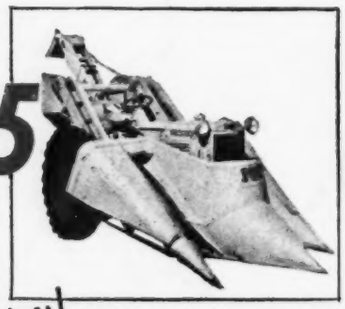
This self-propelled Uni-Huskor pays big dividends in cleaner corn, picked faster and with less work. Typical MM features include 5-position floating snouts, four 53½" long snapping rolls, ten 36" rubber and metal husking rolls, cleaning fan. A sheller unit is now available to convert the Uni-Huskor to a Uni-Picker Sheller.

MM 1-ROW PULL-BEHIND HUSKOR

Here's husking capacity at its one-row best. This MM Huskor gives you all the owner-tested advantages that have made MM pull-behind models preferred on so many farms, *and* the advanced features that put this year's model right out in front of the field. Three gathering chains, eight new sectional type metal and rubber husking rolls, 53½" snapping rolls, Uni-Matic control of floating snouts . . . all combine to give you a real profit harvest of your corn crop. A one-row corn snapper is also available.

MM UNI-PICKER SHELLER

Here's the one-man, *one-trip* corn harvester that picks, and shells your corn *on-the-go* . . . *and* gives you the earliest corn harvest you've ever had! It's the MM Uni-Tractor with the Uni-Picker Sheller mounted piggy-back—built to handle corn up to 30% moisture content and above when necessary. You get your corn while the stalks are still standing, in one fast, easy trip through the field.



NEW MM MOUNTED HUSKOR FOR THE ZB TRACTOR

With the new MM 2-Row Mounted Huskor on the new 3-plow ZB Tractor, you get self-propelled visibility and instant control. Four 53½" snapping rolls, six gathering chains, full-length and full-width husking raddle, ten 36" sectional type metal and rubber husking rolls, large capacity corn saver and Uni-Matic control are important features. This new Mounted Huskor is now available also for MM Models ZAU and ZAN tractors.

NEW MM MOUNTED HUSKOR FOR THE UB TRACTOR

This new MM Mounted Huskor teams with the new 4 plow MM UB Tractor to give you visionlined, big-capacity corn husking at its low-cost best. Enjoy full Uni-Matic control at your fingertips . . . watch the four 53½" snapping rolls and the ten 36" combination steel and rubber husking rolls . . . large capacity corn saver and exclusive MM cleaning fan put *more* of your crop in the wagon—at a new low cost.

See for yourself how far corn harvesting has advanced since last year! Visit your MM dealer and see these advanced MM Huskors soon! Be sure to get facts on the sectional metal and rubber husking rolls.

MINNEAPOLIS-MOLINE MINNEAPOLIS 1, MINNESOTA